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A STUDY OF 1,153 CASES OF SCARLET FEVER

WITH ESPECIAL REFERENCE TO THEIR SEQUELAE *

LOUIS I. DUBLIN, PH.D.
Statistician, Metropolitan Life Insurance Company
NEW YORK

It is the primary purpose of this paper to report on an investigation into the sequelae of scarlet fever. It has been possible, in addition, to examine some general characteristics of the cases under review, and these, too, will be considered in the report. The plan which has been followed was developed in a study of the sequelae of typhoid fever,[1] namely, to trace the condition of the survivors of the disease as far as is possible through an interval of four or five years subsequent to recovery, and to note especially the occurrence of any undue number of deaths during this period from causes which may be considered sequelae of the primary disease. In the case of typhoid fever, I was able to show that, in a series of 1,428 cases in which the patients had survived the attack of that disease, the mortality during the three following years was twice as great as was to be expected from the age, sex, and color of the group. This high rate of mortality resulted from an increase in the number of deaths from tuberculosis and organic heart disease. In view of the well known effect exerted by scarlet fever on the heart and kidney tissues, it seemed likely that an analogous condition of high subsequent mortality might be found to prevail. In any case, it was desired to measure exactly the conditions which actually arise.

The records of the Visiting Nurse Service of the Metropolitan Life Insurance Company again gave us the original material for the investigation. There were 1,153 cases of scarlet fever in the two years 1911 and 1912 among white persons. The patients were all treated by physicians. The accuracy of the diagnosis was in little or no doubt, and the records in other respects were fairly complete and trustworthy. The patients were all policyholders of the company, and their whereabouts and physical condition could readily be traced during the subsequent years. For those patients who died, full and comprehensive medical records were at hand for examination.

Table 1 shows the distribution of the 1,153 primary cases by sex and by age period.

Nearly 82 per cent. of all the cases were among children between 2 and 10; the company has no policyholders in the first year of life. The greatest disposition to the disease is found among children from 3 to 7 years of age; 637 cases, or 55.2 per cent. of the total, were found within these five years of life. The period 11 to 15 presents an appreciable number of cases; but after this period the cases are few and far between, all of them amounting to only 6.9 per cent. of the total. We are, therefore, concerned primarily with children. In this respect our series agrees substantially with other scarlet fever series. McCollom, for example, reports that 75 per cent. of his patients treated at the Boston City Hospital were between the ages of 2 and 10, and 50 per cent. between the ages of 3 and 7. The figures for Willard Parker Hospital cases are very similar. There is apparently no important distinction in this respect between the two sexes.

TABLE 1.—DISTRIBUTION OF 1,153 CASES OF SCARLET FEVER BY SEX AND AGE

Age	Males and Females		Males		Females	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
All Ages	1,153	100.0	501	100.0	652	100.0
2 to 10	941	81.6	433	86.4	508	77.9
2 to 5	503	43.6	254	50.7	249	38.2
2	103	8.9	63	12.6	40	6.1
3	132	11.4	57	11.4	75	11.5
4	148	12.8	73	14.6	75	11.5
5	120	10.4	61	12.2	59	9.0
6 to 10	438	38.0	179	35.7	259	39.7
6	123	10.7	54	10.8	69	10.6
7	114	9.9	47	9.4	67	10.3
8	76	6.6	31	6.2	45	6.9
9	65	5.6	22	4.4	43	6.6
10	60	5.2	25	5.0	35	5.4
11 to 15	122	11.4	53	10.6	79	12.1
16 to 20	43	3.7	11	2.2	32	4.9
21 to 30	24	2.1	4	0.8	20	3.1
31 to 40	13	1.1	..	....	13	2.0

Not only are the children at the youngest ages more susceptible to scarlet fever, but it appears that these children also take the disease in the severest form. This is evidenced by Table 2, which presents lethal rates for the number of deaths per hundred cases treated, classified by age.

There were in all ninety deaths in the total of 1,153 cases; this represents a lethal rate of 7.8 per cent. At age 2, next birthday, 15.5 died out of every hundred treated. For the age period 2 to 5 the lethal rate is 10.1, and for the entire period 2 to 10 the lethal rate is 8.8. Thereafter the lethal rate decreases very appreciably. The very high figure for the age period 31 to 40 is of no significance, since the number of

* The writer is indebted to Dr. Lee K. Frankel for his courtesy in putting the records of the Visiting Nurse Service of the Metropolitan Life Insurance Company at his disposal for this study.

1. Dublin, L. I.: Typhoid Fever and Its Sequelae, Am. Jour. Pub. Health, 1915, v, No. 1.

cases was only thirteen and the number of deaths one; altogether too small a group to give reliable returns.

The figures for our series are again in close agreement with those of other observers. The lethal rate of scarlet fever varies considerably with time and place, depending on the severity of the epidemic. An average of 8.4 per cent. is given by McCollom on the basis of over 37,810 cases in Boston, covering a period of twenty-eight years. Some hospital figures show a somewhat higher lethal rate. According to Osler, 90

TABLE 2.—LETHAL RATES PER HUNDRED CASES TREATED FOR SCARLET FEVER, CLASSIFIED BY AGE

Age	Number Treated	Number Died Under Treatment	Lethal Rate per 100 Cases Treated
All ages	1,153	90	7.81
2 to 10	941	83	8.82
2 to 5	503	51	10.14
2	103	16	15.53
3	132	16	12.12
4	148	11	7.43
5	120	8	6.67
6 to 10	438	32	7.31
6	123	14	13.38
7	114	7	6.14
8	74	3	3.95
9	65	6	9.23
10	60	2	3.33
11 to 15	132	4	2.03
16 to 20	43	1	2.33
21 to 30	24	1	4.17
31 to 40	13	1	7.69

per cent. of all the scarlet fever deaths are of children under 10; our figure was 92 per cent. As our cases were drawn from all parts of the country, no particular epidemic is unduly represented, and the findings are close to the best previously reported averages for large series of cases covering many years.

The 90 deaths showed complications in 62 cases. In 11 of these there was a distinct kidney involvement. Heart conditions were recorded in 7 fatal cases. Pneumonia was present in 13 cases. There were 4 cases of meningitis and 1 case of otitis media. In 9 cases the scarlet fever was complicated by the presence of other acute infections like diphtheria or measles. The other complications are few in number, and are too vaguely stated to justify special attention. Among the 1,063 survivors we find similarly a record of 31 cases of nephritis, 31 cases of otitis media, 22 cases of adenitis, and 11 cases of pneumonia. It is very probable, however, that in the nonfatal cases the complications were not stated as fully as could be wished, certainly not as fully as is usually done in hospital practice. Osler, for example, records the presence of nephritis in from 10 to 20 per cent. of his cases. Heart complications are also recorded in higher proportions in other series. Middle ear trouble is reported in 20 per cent. of all cases by Fisher, and the same author, in a series of over 6,000 cases, records 14 per cent. that had adenitis. We must not infer, however, from the smaller number of complications recorded by us that the cases were less severe than is usual. We have already shown that the lethal rate is very close to the average obtained by other investigators on the basis of large exposures over long periods.

We are now concerned with the tracing of the 1,063 cases in which the patients survived, and we shall see whether, during the following years, the complications or impairments which they suffered really affected their chances of life to any appreciable degree. There were represented, during the entire subsequent period, 3,583 years of life. This means that the 1,063 persons were under observation for an average period of 3.4 years. The expected number of deaths for this group of survivors was then calculated. The mortality rate actually experienced by the company for corresponding age, sex and color during the years covered by the study was used as a standard. According to this measure, we had a right to expect 18.6 deaths. As a matter of fact we experienced only 18 deaths. Far from showing a higher mortality, as was the case in the typhoid fever study, we found a death rate almost identical with the expectation based on our general mortality experience. The actual mortality was 97 per cent. of the expected. We may, therefore, say that during the period covered by our observations the mortality of the survivors as a group shows apparently no increase. Table 3 presents a comparison of the actual and expected mortality among the 1,063 survivors, classified by age period.

The most favorable condition is found in the age period 2 to 5 years. The actual number of deaths is somewhat higher than expected in the age period 6 to 10 (117 per cent.). The deaths are considerably higher in the period 11 to 15 (244 per cent.). In view of the small number of persons exposed in this age period the figures must not be considered as entirely decisive, although they are suggestive.

It is of interest to find that, of the eighteen deaths which occurred in the four years, three showed a record of endocarditis on the death certificates; these cases may reflect the impairment resulting from the original scarlet fever. There were five deaths from respiratory diseases and four from tuberculosis. The remainder were scattered among a number of causes which have no particular interest for us. Strangely enough, there were no deaths from kidney diseases. Apparently, among the survivors of the primary disease, the kidneys were not sufficiently impaired to cause early death.

TABLE 3.—COMPARISON OF ACTUAL AND EXPECTED MORTALITY AMONG 1,063 PERSONS IN FIVE YEARS FOLLOWING RECOVERY FROM SCARLET FEVER; CLASSIFIED BY AGE PERIOD

Age Period	Number of Years of Life	Number of Expected Deaths	Number of Actual Deaths	Actual Deaths per 100 Expected
All ages	3,583.46	18.61	18	97
2 to 5	908.29	9.16	7	76
6 to 10	1,614.35	6.00	7	117
11 to 15	669.53	1.64	4	244
16 to 20	194.88	0.62	..	...
21 to 30	105.66	0.67	..	...
31 to 40	60.75	0.52	..	...

We are concerned, therefore, with explaining the difference between the actual experience and that which was expected on the analogy of our typhoid fever investigation. A comparison of the two sets of conditions is useful, moreover, because it helps to a clearer insight into the kind of impairment which results from scarlet fever. In the typhoid fever cases there was, after recovery, a marked increase in the number of tuberculosis deaths. An increase was also noted in the number of deaths from organic diseases of the heart, but this was not so great. In our scarlet fever cases, on the other hand, there is no positive evidence of an increase in the number of tuberculosis

cases. The three deaths from endocarditis are too few to justify any conclusion as to serious heart impairment in the survivors. The interesting fact is the absence of deaths from kidney diseases. It would seem, then (and this is confirmed by clinicians), either that impairments of the kidneys, which are so common in scarlet fever, are severe enough to cause immediate death, or that in the survivors the injurious effect is not sufficiently great to kill within the next five years. Apparently, in the cases in which there was recovery, there has not been enough destruction of kidney tissue to prevent subsequent regeneration. It is quite possible, of course, that ultimately there may be an increase in the expected number of deaths from kidney lesions, although such a consequence may not manifest itself until ten or more years have elapsed after the initial incidence of the scarlet fever. We hope to clear up this possibility in the future.

DEATH RATES FROM SCARLET FEVER

Although, as I have indicated, the sequelae of scarlet fever are apparently not an appreciable factor in the mortality of survivors, it should not be overlooked that the disease itself still constitutes an important factor in child mortality. The disease has not shown the same amount of decrease in frequency during the last fifteen years that has been observed in connection with other infectious diseases. The death rate fluctuates about the figure of 10 per 100,000. In 1900 the scarlet fever death rate in the registration area was 10.2; in 1913 the rate was 8.7. In spite of this drop, there were a number of years in the intervening period when the rate was even higher than the 1900 figure. Light is cast on the mortality conditions from this cause by the industrial mortality experience of the Metropolitan Life Insurance Company, the figures for which are presented in Table 4. These rates are new and have the particular advantage of accuracy. The count is correct not only for the number of deaths from scarlet fever, but also for the number of persons living in the various classes by which the mortality is enumerated. We are able to present rates by age, period, sex and color.

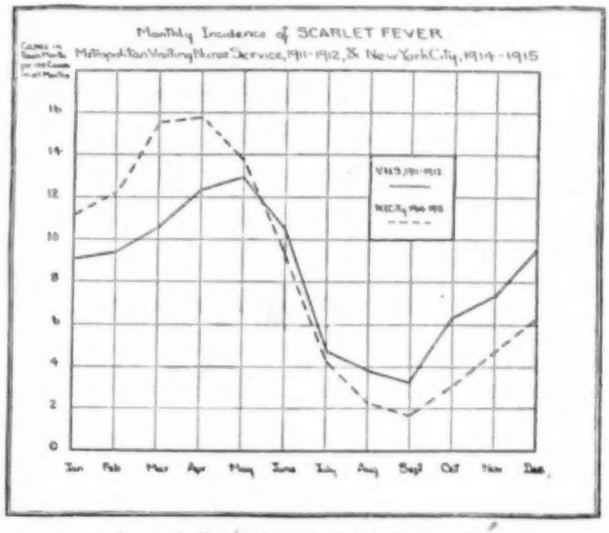
The most interesting fact indicated by this table is the markedly lower mortality of the colored. Generally speaking, the death rate for colored children is about one fourth that of the whites. This fact may serve medical investigators as a point of departure for a study of the etiology of this still obscure disease.

TABLE 4.—MORTALITY EXPERIENCE FROM SCARLET FEVER, 1911-1914, 3,778 DEATHS CLASSIFIED BY COLOR, BY SEX AND BY AGE PERIOD; DEATH RATES PER HUNDRED THOUSAND; METROPOLITAN LIFE INSURANCE COMPANY—INDUSTRIAL DEPARTMENT

Age Period	Persons	White Males	White Females	Colored Males	Colored Females
All ages	11.1	13.8	11.2	2.7	2.2
Under 5	64.4	71.1	64.7	17.4	21.9
5 to 9	29.5	27.3	31.0	10.3	7.3
10 to 14	8.0	7.2	9.7	5.3	2.4
15 to 19	3.5	3.8	3.7	0.5	2.2
20 to 24	1.8	1.1	2.9	....	0.4
25 to 34	0.9	0.7	1.3	0.3	0.2
35 to 44	0.5	0.6	0.5	....	0.5
45 to 54	0.2	0.2	0.1	0.5	....
55 to 64	0.3	0.2	0.3	....	0.7
65 to 74	....	....	....	....	....
75 and over	0.8	....	1.4	....	....

TABLE 5.—INCIDENCE OF 1,153 SCARLET FEVER CASES, 1911-1912, BY MONTHS

Month of Occurrence	No. of Cases	Month of Occurrence	No. of Cases
January	105	July	53
February	111	August	45
March	133	September	36
April	141	October	71
May	149	November	82
June	119	December	108



Seasonal distribution of scarlet fever cases.

SEASONAL DISTRIBUTION OF SCARLET FEVER CASES

Our study has also made possible a presentation of the seasonal distribution of the 1,153 cases of scarlet fever. This distribution is shown in Table 5.

From January the frequency of the disease rises rapidly until May, when the maximum number of cases occurs. Thereafter there is a rapid drop in the number until September, which is marked by the minimum. For the remainder of the year there is a rise in the curve which stops at a point which is slightly higher than that experienced in the previous January.

The accompanying chart shows the seasonal distribution of these scarlet fever cases compared with the distribution of 20,984 cases reported by the Department of Health of New York City for the two years 1914-1915. The cases which were reported in each month, per thousand occurring in the entire year, are shown.

The two series are clearly similar in their distribution. The largest number of deaths occurs, in both, during the months of April and May, and the fewest number in September. It is during the summer months that the cases are rarest in their occurrence, and it is quite possible that this condition is correlated with the absence of children from school during the vacation period. With the opening of school in September the number of cases begins to increase rapidly, reaching the maximum in the spring. Of course, attendance at school is not the only factor, since certain respiratory diseases show a similar seasonal distribution, and are clearly subject to the weather conditions.

THE MUNICIPAL HOSPITAL AS A FACTOR IN CLINICAL TEACHING *

HANAU W. LOEB, A.M., M.D.
Dean, St. Louis University, School of Medicine
ST. LOUIS

Since the establishment of the first medical school in America, there has been a tacit understanding that the patients in public institutions should be placed at the disposal of medical colleges for clinical instruction. While this understanding has been more or less indeterminate and has been, in fact, frequently set aside by public or private action, there has been in the main an admission of the right of medical education in this particular.

This right has not infrequently been subject to revision or abrogation by officials temporarily in power; in some cases the exercise of the right has been attended with difficulties, complex in character, and in other cases the right was established or implied by statute. For instance, as far back as 1876, the St. Louis city charter, adopted that year, specifically gave to the medical schools of the city the authority to conduct clinical instruction in the city hospital, but denied it in the Female Hospital, which was at that time a social evil hospital.

Until the adoption of the staff plan, six years ago, the St. Louis City Hospital was under the direction of a superintendent, often the mayor's personal physician, who was clothed with the business management of the institution, subject, however, to considerable political pressure. The superintendent was the sole arbiter of the medical care of the patients of the hospital, unhampered by any interference on the part of politics, which, however, still continued to be impressively concerned with the business side of the institution.

The consequence was that each four year period found a new incumbent, generally without business or institutional experience, with an overweaning desire and hope to achieve triumphs in surgical practice when the turn of politics brought forth his successor. In a few instances — by accident, let us say — a trained surgeon secured the position, but these were the few hopeful exceptions. As to the nonsurgical care of the patients in the early days, it was either ignored or placed entirely in the hands of the interns. Later, however, a more or less irregular attendance on the part of a few earnest physicians of the city, without official appointment or without official authority, supplemented the service and improved it to a great extent. Later still, the medical service was placed under the charge of one of the assistant superintendents.

This type of organization, if so it can be called, offered very little hope for clinical instruction in the municipal institutions of St. Louis, and as a consequence the private hospitals of the city were utilized by the better medical schools, the municipal hospitals being either ignored or used only in a perfunctory and certainly in an unsatisfactory manner. At one time, there were eight colleges using the city hospital, and as many as eight lectures delivered in one week on one poor patient — without harm to him of course, for he was not examined by the multitudes of eager aspirants for knowledge in the eight different colleges, but he was *looked at* from a distance by eight more or less sleepy crowds and *talked about* by eight professors, who were prepared to lecture on the patient, even if their examination consisted of a few minutes' previous conversation with the intern in charge.

Instruction was practically limited to amphitheater talks and discussions by men who had no professional charge of any patients in the hospital, and bedside work was absolutely prohibited.

I have given this short sketch of the teaching history of the St. Louis City Hospital because, in great measure, it is the history of such institutions in other cities, somewhat modified, it is true, by the local environment and by the reactions consequent on local medical activity.

Apart from the futility of appointing an inexperienced man to be both adminstrator and sole surgical operator in an 800 bed hospital, there existed the stupid provision of changing him every four years for another, who was almost necessarily less trained in hospital administration, if not in operative work.

While admitting the doctrine of equality before the law, the appointing power does not and often cannot exercise a proper discrimination between the qualified and the unqualified, owing to the exigencies of political administration and party patronage. As a consequence, when, by way of exception, a really good man was made superintendent, it was due either to an unusual ability and foresight of the authorities with a strong regard for justice to the community or to a strange concatenation of circumstances that political sleight of hand sometimes sets in motion.

Where the staff plan has been in evidence, the scheme of appointment has been subject to the same objection as in the other plan, for the qualification of the appointees was not the basis of selection except in rare instances; generally the designation of the degree "Doctor of Medicine" satisfied the question of qualification, and political relations determined the appointment. But in the last ten years a tremendous change has taken place, brought on perhaps by the drift of medical education and perhaps also by an awakening sense on the part of the profession which has influenced the powers that be in the proper direction.

The truth of this is shown in the responses to the following question, which I submitted, among others, to the Class A schools of this country: "Have you more control over the material in the municipal hospitals today than you had ten years ago?"

Some of the colleges in the larger communities where there has been no need of the municipal hospital for the purpose of clinical instruction, and institutions such as Tulane, Texas, etc., which have had for years the fullest control over the municipal hospital, note no improvement in this regard. This is also true of the colleges in New York which share the material at Bellevue Hospital. The answers of the other colleges, however, indicate a tremendous increase of the college influence, and manifest the growing tendency all over the country of the feeling that the best interest of patients in municipal hospitals is conserved and promoted by a closer relation with medical colleges both in treatment and in clinical instruction.

About six years ago, the system in vogue in St. Louis for many years was changed, and the municipal hospitals were placed under the control of a hospital board and hospital commissioner. In place of a single superintendent with both medical and administrative func-

* Read before the Association of American Medical Colleges, Chicago, February, 1916.

tions, the medical control was vested entirely in a staff of physicians who were appointed by the board, and a superintendent was placed in charge of the administration.

This was a tremendous step in advance, for such attending physicians as were connected with medical colleges had under this new arrangement the necessary control over their patients to use them for clinical instruction if they so desired. While, here and there, men were appointed without the proper qualification, a group of men were gathered together eminently fitted for the work. Naturally, the college men were in larger number than those not attached, and it was therefore possible to utilize the institution better for clinical purposes than ever before.

The new charter adopted in 1914 made the foregoing plan a part of the organic law of the city, except that the director of public welfare was given general direction, taking the place of the hospital board, which was abolished, and the hospital commissioner was given full power of appointment.

While the latter arrangement was a great improvement over the preceding system, there still remained much to be achieved, more particularly with respect to organization. The positions on the staff belonged, as it were, to the attending physicians and not to the colleges, and hence the colleges were obligated for the material to the attending physicians, and were dependent on their good will for clinical instruction, so far as the municipal hospitals were concerned. This was, to say the least, not conducive to efficiency or coordination of teaching. Furthermore, the appointments were for two years, and therefore there was no assurance that even the best clinical instructor would be continued in office for a longer period. This made it impossible either to perfect an efficient organization or to establish a definite policy. While enthusiasm and activity of a corps of instructors may make up for deficiency of organization, these good qualities may be in time supplanted by indifference or neglect.

To obviate this and to provide a plan of appointment subject to less pressure from friends and political associates, the hospital commissioner (Dr. C. H. Shutt), with the consent of the director of public welfare, accepted a plan which was the result of numerous conferences with the deans of the Washington University and St. Louis University medical schools — a plan which could not have been adopted if the representatives of these two institutions and the hospital commissioner had not kept constantly in mind the civic responsibilities brought about by the situation.

The plan adopted is as follows: The hospital is divided as equally as possible into three units. For Unit 1, the appointments are made, without reserve, on nomination of Washington University; for Unit 2, they are made similarly on nomination of St. Louis University, and for Unit 3, the hospital commissioner appoints whom he pleases, no instructors in either of the universities being eligible. Units 1 and 2 are entirely under the control of the respective universities, and thus it has been possible to establish the rank of appointees which was impossible heretofore. Hence it is that in each of these units there is a complete organization in each department, and each clinician's position in the unit is dependent on the university controlling it. Furthermore, as a later development, definite members of the resident staff have been attached to the different units, and definite wards have been assigned.

While the outside unit cannot possibly effect an organization similar to that of the teaching units, especially in view of the equality of rank and the absence of institutional control of the clinicians, much has been done to establish its efficiency. In the assignment of wards, Units 1 and 2 have properly given first selection to Unit 3.

The immediate policy of the staff is under the charge of an executive committee composed of two representatives from each unit, and I may say that there has been the utmost harmony in all of its transactions. Although the plan has now been in operation for but eighteen months, it has been productive of good results, not only as to clinical teaching, but also in efficiency, which is even more important. Without giving the details of this improved order of things, which must be manifest to any one who understands the value of organization, I content myself with mentioning that during the year ending Dec. 1, 1914, there were 5,238 visits made by the staff, whereas during the following year under the new plan there were 10,930.

It is true, the continuance of this whole plan is dependent on the will of the hospital commissioner and the director of public welfare, but we feel that the value of a consistent organization to the patients of the municipal hospitals will become increasingly manifest, and that the influence of the two universities cooperating in this great civic and educational activity will be potent enough to cause its permanent adoption.

This same plan can be adopted in other large centers, provided the medical colleges of the highest class work together to the end that public charges in municipal hospitals shall be under the direction of a staff that is appointed on the basis of a definite policy, which comprehends only the highest ideals of medicine, always bearing in mind that provision must be made for the large number of medical men who are not connected with medical colleges, and who possess ideals and qualifications equal to those of the instructors in recognized medical schools.

The dean of a certain medical college writes me of his most excellent plan by which, under private arrangement made with the constituted authority, the college makes the appointments. He asks me not to mention the name of the institution for fear that, if it were known, the privilege would be lost. Without knowing the local conditions, I venture the opinion that publicity in this regard, fortified with the civic and professional validity of such practice, will do more to perpetuate it than the secret understanding, which is likely to be abrogated in time, as the arguments for its continuance have been carefully concealed.

In administering the St. Louis University unit, we have kept in mind the two important organization requirements, first the patient's welfare and second the student's opportunity. We have felt that these could be best achieved by organizing each department on the basis of a head, responsible to the institution, with associates and assistants under his direction. As our appointments are not limited to any specified number, except as to the minimum, we can exercise our best judgment as to the personnel.

It was soon determined that the organization in prospect required far more of the clinician's time than under the previous plan. For this reason, it was found advisable to provide compensation for some of the men in medicine and surgery, at the same time requiring them to spend from three to five hours a day

in attendance on patients and in instructing students assigned to work at the City Hospital.

At present, three of the attending physicians and three of the attending surgeons are paid, not an extravagant amount, but at least enough to justify them to give the time which the service and instruction require. In addition, there are two men in medicine and two in surgery who are not paid. Our purpose is to increase the number of men who are paid for part time, and to add men with proper compensation in these two departments who will give their full time to the work. At present, no provision has been made for compensation in the specialties; in fact, under our conditions, it is hardly necessary; still, it would not be amiss if full or part pay men were provided in children's diseases, obstetrics and nervous and mental diseases.

It is thus seen that our institution is provided with 350 beds in the municipal hospitals, entirely under our charge, with paid instructors in medicine and surgery, with definite assignment of wards under our own members of the resident staff, and with authority to train our students according to the opportunities presented.

I would not have it understood that this implies that the condition is absolutely satisfactory or that there are not many difficulties in the way of an ideal accomplishment; but at any rate we are approximating the rational solution of the question.

The type of clinical material in municipal hospitals in America has not been altogether the best for teaching purposes, especially in the surgical service. The variety is limited, and the stay of patients in the hospital is too short, for few, except those who find it impossible to go elsewhere, apply for admission to the city hospital. Why should it be otherwise in an institution which can have no definite policy, which has no consistent organization, and which is administered by men who, whether they are qualified or not, are in the main appointed by those who do not know and cannot know? Why should the people, if they can avoid it, place themselves under the care of physicians whose appointment is not on a qualification basis, and whose tenure of office does not depend on the presence or absence of their efficiency or attention to duty?

How much better is it to hold the universities or medical colleges of the highest class responsible for a definite portion of a hospital, bringing to the institution the influence, the organization and the efficiency which this plan assures, not by concealing its potentiality, but by openly advocating the measure on the well grounded, easily proved claim that it is the best for the people and for the hospital. A general adoption of this plan (particularly if the clinicians are paid by the universities) must be followed by an improvement in the character of the clinical material and a more perfect fulfilment of the function of the city in respect to its indigent wards.

Under present general conditions there is an economic waste of thousands of patients in municipal hospitals who are lost as material for instruction to students in medicine. Add to this the vast amount of funds required by the more fortunately endowed institutions to furnish their students with material for study. How much less money would be required and how much more material would be available, if these same institutions could perfect a proper organization of their legitimate share of the municipal hospitals!

Nor may we evade this issue by saying that the municipal hospitals are necesarily a part of the municipal political machine, and therefore unworthy of our concern. Our obligation as educators and citizens demands of us that we exert our utmost to the end that these institutions be made to serve their highest functions in medicine and pedagogics.

Politics and practical politicians have the greatest regard for the demands of the people, and they listen with keen ears to those who are honestly working for the public good. For this reason, cooperation and public propaganda of the good to be accomplished by this plan of organization, efficiency and consistency of policy will be followed by its adoption and continuance, without any opposition or with only the feeblest protest on the part of those who are looking for personal perquisites.

The result will be that American medical institutions, like the European, will be able to bring the highest ideals of medicine into municipal hospitals, and to provide their students with what is absolutely essential, if the physician of the future is to be the beneficiary of the best sources of instruction in his profession.

A "GROUP STUDY" PLAN FOR A DIAGNOSTIC TEAM ACTING AS A LABORATORY FOR THE PROFESSION *

FAYETTE WATT BIRTCH, M.D.
SAN FRANCISCO

Since the idea of pay clinics, group study, diagnostic team work, medical attention to the middle class, and the limitations of physicians have been frequently and openly agitated in the medical journals and the lay press, it is deemed advisable to present for consideration the San Francisco St. Luke's Hospital Clinical Club's plan for diagnostic group study in general hospitals. This plan provides a type of group consultation for the general practitioner with the aim of preserving the advantages of specialism and eliminating the disadvantages.

There are a few private pay clinics in this country where patients may go and be completely examined by a number of specialists. At these clinics the majority of cases remain under the care of the doctors of the institution, passing out of the hands of the referring physicians. St. Luke's Hospital, San Francisco, is the only institution reported to have organized specialists to act as a laboratory for diagnostic purposes, returning the patient after investigation to the referring physician with a protocol of the findings and recommendations for the treatment of the case.

Two of Dr. Richard C. Cabot's articles[1] are of interest in this connection. His ideas in the first appear to be sound in theory, but the subsequent discussion of the paper clearly indicates that no definite plan for the solution of the problem was received. The second article undoubtedly contains many ideals far in advance of present medical practice, but in it are many things which would have been better unsaid. Dr. Cabot makes destructive criticism of the profession without balancing it by constructive criti-

* Read before St. Luke's Hospital Clinical Club, San Francisco, March, 1916.

1. Cabot, R. C.: The Need of Pay Clinics for Persons of Moderate Means, Am. Hosp. Assn., 1915, xvii, 411. Better Doctoring for Less Money, Am. Mag., April, 1916, p. 7.

cism. He has sought to teach the laity to distrust the general practitioner, without giving the doctor a concrete plan for the correction of his faults. If Dr. Cabot will continue his articles on this subject in medical journals and construct a plan whereby group study can be practically carried out by the profession, he will do much toward obtaining better medicine for the masses.

This new era in medicine is very young; the medical universities are not yet teaching this type of medicine; they have not even accepted it, and in fact, there is no definite instruction to be had on the subject. The method of group study now employed in hospitals, by referring the patient from one department to another without joint discussion of cases by the heads of these departments, is open to as severe a criticism as Dr. Cabot applied to the methods of the general practitioners. But publications on these imperfections which will stimulate the laity to pass laws and regulations on medical matters, before the profession has had an opportunity to study the problems and make recommendations, will prove detrimental to the best interests of progressive medicine.

It has not been long realized that the three great classes of patients, the rich, the poor, and the middle class, are receiving quite different medical attention. The rich man, while he is able to pay for the services of a large number of high-priced specialists, presumably gets the best medical consideration; but unfortunately the highly paid specialists are individuals who are not organized, and their work is not correlated. Consequently, consultations are often perfunctory and unsatisfactory to both physician and patient. The pauper, on the other hand, gets the very best that medicine has to offer. He goes to the free clinics, where all branches of medicine are represented, and is carefully examined by the various clinicians. The individuals of the middle class, constituting about 90 per cent. of the sick, are getting the worst medical care. They cannot afford to pay large fees for high class specialists, nor will they accept charity. They are compelled to accept incomplete examinations, erroneous deductions, and, what follows: inappropriate treatment. The great mass of the people, however, will not endure this long. The solution of the problem will soon be found, and it will come as the result of search from an economical, if not from a humanitarian, standpoint.

Dr. E. V. Knapp, our pathologist, has aptly said in an unpublished paper:

> Specialization is a necessity depending on human mental limitation. If a clinician had a mind sufficiently endowed by nature, and sufficiently cultured by study to be able to appreciate all that is known about anatomy, surgery, pathology and all other divisions of medicine, and he also had at his disposal time to make examinations of his patient in each of these branches, he would then have a most comprehensive, correlated clinical picture; but each division of medicine has developed so extensively that it is impossible to ascertain full knowledge of any one. Furthermore, no individual could cover all divisions of medicine in all cases even though he had the ability to do so. Consequently, the general practitioner is no longer able to depend upon himself completely to guide his patient through any obscure illness.

Specialism, however, has many disadvantages. The specialist often views the cases from his branch of medicine to the exclusion of others. The physician who interprets the condition of his patient, partly through written reports of the specialists who have not considered the patient as a whole, will frequently draw false conclusions. These reports might be added to or subtracted from, if the specialists had viewed the case from all angles. Consultations are also expensive and tend to make doctors employ them only when they seem indicated. If group consultations could be a routine procedure, frequently pathologic conditions which are not suspected would be found. The great disadvantage of the present day consultations with specialists is that they seldom meet to discuss their findings, and the case is rarely reexamined in the light of new evidence, remaining hazy and incomplete.

Realizing their limitations and the disadvantages of the present day consultations, the profession in this vicinity, nearly three years ago, organized the San Francisco St. Luke's Hospital Clinical Club for the purpose of remedying such conditions. There were no guides and no landmarks, and a new trail had to be blazed. It was decided to meet once a week to discuss cases, work them over, and try various plans of study. Cases were studied single handed, in groups, by recommendations, by referring to specialists, and in every conceivable way, until at last "group study" was decided on as a partial solution of the difficulties. Here is an outline of the method used:

A diagnostic section was organized out of the San Francisco St. Luke's Hospital Clinical Club. This section consists of ten men, each having special training along some particular line. The members of the profession refer obscure cases to this section for diagnosis. These patients are placed in the hospital for observation, and each member of the diagnostic team makes an individual examination and a written report of his findings. At noon each day the team meets to discuss the cases. If the case is not clear at the first consultation, further investigation is recommended, and any new discoveries are reported the following day. This method of procedure is continued day after day until some conclusion is reached. The physician who referred the case is asked to be present at all of these consultations. Finally, the patient is referred back and a written report of the findings and recommendations for treatment are mailed to the attending physician. Thus the specialists make of themselves a diagnostic laboratory.

All of this work is being done by the diagnostic team for a fee commensurate with the patient's income. The amount collected is not sufficient to pay for the time of the clinicians. However, the good that is being accomplished by this method of study and the educational returns for each member of the team in daily discussion with his colleagues amply repays the clinicians.

In our experience the success of a plan of this kind depends briefly on the following conditions: The diagnostic team must accept, from the profession, cases for investigation at a price consistent with the income of the patient; cases should be examined by all the members of the team; the results of their findings must be written; the specialists meet in daily consultation over the cases, and investigations continue until all possible evidence is discovered. The case is returned to the physician who sent it and a report is mailed, together with the conclusions and suggestions for treatment.

The results to be expected from such a scheme are these: The general practitioner will gladly accept it;

the good influence of the family physician will be preserved; medical men in the community will take advantage of the daily discussions and gradually broaden their point of view of medicine; this method of group study will maintain the advantages of specialism and do away with the disadvantages. Clinical reports from this work bearing on these predictions are now being prepared for publication.

It may be said that the type of group study as now practiced in general hospitals is unsatisfactory. The assignment of cases to departments for treatment is often determined by the patient's complaint without previous investigation by the various departments, which is comparable only to the methods employed by the general practitioner. Group study to be profitable must not only provide for the treatment of the complaint which causes the patient to seek advice but also aim at the discovery of hidden departures from the normal in order that proper therapeutic and prophylactic measures may be recommended to the end that the individual's future health may be conserved.

St. Luke's Hospital.

THE TREATMENT OF INTERNAL HEMORRHOIDS, BLEEDING SPOTS AND VILLOUS TUMORS OF THE RECTUM BY THE HIGH FREQUENCY CAUTERY *

JOHN A. HAWKINS, M.D.
PITTSBURGH

No matter what the argument, there will always be a number of people who will balk at the word "operation." In the palliative treatment of hemorrhoids the best that can be expected is relief, as the name implies, and the degree of this palliation is speculative. If the piles are of the external variety, whether the tumors are inflamed or not, the subcutaneous injection of a 2 per cent. solution of cocain, alypin or other local anesthetic, followed by excision and the loose horsehair suture of the edges of the wound, will give good results, and the patient scarcely realizes he has had an operation.

In the treatment of the internal variety the quacks have always been popular, in that they risk infection, abscess and other dangers when they inject their patients with phenol (carbolic acid) solution. There is no doubt that they have cured some patients, but it is equally true that they have produced intense suffering, and in many cases their treatment has led to fistula. I recall one case in particular of a patient who, after injection for hemorrhoids, developed a fistula with an opening larger than the index finger. Strange to say, the quack "got away with it." However, the lucky patient, who escapes the dangers mentioned, and obtains a cure without the dreaded operation, forgets his suffering and sings the praises of the one who cured him. I am not decrying the radical operation for hemorrhoids. Excision and suture quickly disposes of these tumors. But for the patient who cannot or will not take an anesthetic the method I describe will efficiently, though slowly, give a radical result, and the patient need lose no time from his work.

Several years ago Beer of New York described a method of removing villous tumors, or papillomas, of the bladder by the use of the high frequency current of Oudin, that is, the single pole current, and cited cases. Later, he published case reports of other operators, among which he included some of my work. This method is now a recognized mode of treatment for these tumors. About two years ago I tried this method in the treatment of a case of bleeding from a nevus growth in the rectum. The usual treatment of this condition has been the application of pure nitric acid by means of a glass rod, with the possibility that the acid might not limit itself to the growth. The result of the application of the high frequency current was excellent. This success led me to try it in a case of internal hemorrhoids. My patient was a man who was willing to try anything except an operation. He had one tumor larger than a pecan and several small ones. It took ten treatments covering three months. (Less than half that time would now be necessary.) The cure was radical and the man did not lose a day from his office. This was in September, 1914. Since then I have operated on quite a number of other patients with internal hemorrhoids, in many of whom bleeding was the chief symptom.

In this work I use the Wappler portable transformer, with Krafft spark gap, and the 110 volt alternating current. This current, stepped up on the rheostat to number 3 or 4 and a very narrow gap, gives a very hot spark at the aluminum electrode, which quickly sears the flesh, with the odor of burning meat. A foot switch is convenient, but not absolutely essential. An electrode of $\frac{3}{32}$ inch aluminum rod set in a hard rubber handle and bent to an angle of 135 degrees with the handle, and covered with thick-walled rubber tube, can easily be procured. This electrode is about 4 inches long, and to make a large burning surface a small shepherd's crook should be made on the end. One can readily try out its cauterizing effect on callus found on nearly every doctor's hand since the advent of the automobile. With the patient in the knee-elbow position and sway-backed, a toothpick around which is wound absorbent cotton, making an applicator $\frac{1}{4}$ by $1\frac{1}{2}$ inches, is soaked in a 4 per cent. solution of any of the previously mentioned local anesthetics and pushed into the anus, being allowed to remain there for about ten minutes, while the apparatus is made ready. The anal tube or speculum is now introduced, the light attached, the anus wiped out if necessary and the electrode applied. (I use a Martin's anal tube, to which is attached my own lamp arrangement, although even a head mirror may be used.)

The application of the electrode differs from that of the electrocautery. The electrocautery is applied to tissue after it becomes red, but with the high frequency electrode the cauterization is accomplished in the gap or arc between the electrode and the tissues. The electrode is of aluminum and does not even become discolored. It is applied to the tumor and then carefully withdrawn until its highest efficiency is secured, as determined by the eschar and smoke. One tumor is thoroughly burned longitudinally with the axis of the bowel. When this tumor has become black, another is given a light dose; that is, one tumor is burned quite energetically and one or two lightly at a sitting, and then the burned area is painted with liquid petrolatum, or, as I prefer, with oil of eucalyptus, 1 in 8 of the oil, and no further treatment of the parts is given for two weeks, or until the sloughs have come away and the parts are clean. There is little or no pain ten

* From the Surgical Department, South Side Hospital.

minutes after a treatment, and the local anesthetic lasts that long. One can hardly believe the statement that the pain of the high frequency burn is so transient; but the burn is severe for a few minutes unless anesthesia is secured.

Having used this method of treatment for several years in the removal of bladder tumors and for nearly two years in the treatment of rectal hemorrhages and tumors, I cannot speak too highly of the results.

6126 Jenkins Arcade Building.

ACUTE PELVIC APPENDICITIS

WITH CASES IN POINT

EDMUND A. BABLER, M.D.
Surgeon to Deaconess and City Hospitals
ST. LOUIS

An acutely infected appendix is the most frequent and one of the most serious acute abdominal lesions demanding surgical attention. The laity is not alone responsible for the present-day mortality being higher than it should be; this is due in part, I think, to the frequency with which the appendix lies in the pelvis, thereby changing the classic picture of acute appendicitis so materially that we do not always recognize the source of the symptoms sufficiently early to avoid disaster.

We all know how deceptive may be the symptoms in acute simple appendicitis. When the appendix lies in the pelvis the picture may be even more deceptive, since the clinical manifestations are largely dependent on (1) the site of the appendix, (2) the severity and duration of the infection, (3) the presence or absence of adhesions, (4) the state of health of adjacent organs, and (5) the character of the treatment. The cases herein reported emphasize these facts.

Pain is invariably a prominent symptom. It differs from the classic in being situated lower in the abdomen and more diffuse in character; in many cases it is referred to adjacent organs. The absence of localized pain at McBurney's point is one of the most frequent causes of our failure to recognize the disease. In many cases the pain will be most severe just above and to either the right or left of the pubes. In several of my cases it was referred to the bladder, while in others the patient complained of persistent severe pain in the epigastrium. Sudden cessation of severe pain may signify perforation; in any case it does not necessarily mean improvement.

Abdominal rigidity is nearly always present, but the impressive feature in these cases is the finding that both recti are rigid; the rigidity is not limited to the right rectus, although it usually is more rigid than the left because the site of inflammation is usually to the right. The left rectus may, however, be more rigid than the right. This is a frequent cause of confusion in making a diagnosis in these cases.

The characteristic point tenderness midway between the umbilicus and the anterior superior spine of the ileum, as described by McBurney, is absent because the field of action has shifted to the pelvis. This finding is quite misleading unless the practitioner recalls that the appendix frequently lies in the pelvis. Pressure made over McBurney's point may not cause any pain whatsoever; pressure over a corresponding point on the left may incite severe pain. Rectal examination may show an inflammatory mass in the pelvis.

Vomiting is usually not a persistent symptom. When the inflammatory process is advancing upward it may be more or less constant. It usually follows the initial pain of onset, but may precede the pain. If the appendix becomes adherent to coils of small intestines causing ileus, vomiting becomes a very prominent and persistent symptom.

Flexion of the right leg is usually absent in cases of acute pelvic appendicitis. The reason is obvious. Late in the disease, however, both limbs will be found flexed.

The pulse, temperature and blood findings do not differ from those observed in classic cases.

The diagnosis of acute pelvic appendicitis requires a careful consideration of the previous history, the mode of onset of the present attack and the shifting of the symptoms from the epigastric to the hypogastric and inguinal regions instead of to midway between the right anterior superior spine of the ileum and umbilicus; the physical findings will eliminate primary involvement of the adjacent pelvic organs. The mere fact that the symptoms began as an appendicitis and the picture still resembles the clinical manifestations of a diseased appendix, although the characteristic McBurney point tenderness, etc., are absent, should lead us to make a provisional diagnosis of acute pelvic appendicitis. This is especially true if examination then shows absence of disease of the adjacent pelvic organs; an immediate operation is called for. It is not necessary to have the classic picture of appendicitis to make a diagnosis of appendicitis. The preponderance of the symptoms, and the fact that the patient is suffering from some acute pelvic lesion which is not due to an acute pus tube, should warrant immediate attention. We all know that when the appendix is adherent to the bladder or to the peritoneum overlying the ureter, the patient will often complain of bladder symptoms and the urine may contain blood and pus (Cases 1 and 4). We also know that the appendix may become adherent to the rectum or ovary, or possibly to an infected tube, thus causing symptoms of acute infection in the respective organ.

In any case the clinical manifestations indicate clearly an acute abdominal lesion demanding early attention. If in doubt as to the diagnosis, the physician should place the patient in Fowler's posture, administer saline proctoclysis according to Murphy's method, and withhold all purgatives, food and opiates. Purgatives only increase peristalsis and the possibility of perforation. An enema is preferable. If the symptoms persist at the end of six hours, a consultation should be held.

The treatment of acute pelvic appendicitis does not need comment. We all know that immediate operation saves practically every case of appendicitis. The contention that we should wait until the inflammatory process becomes localized is simply preposterous; Murphy has shown how erroneous is this thought. Morphin administered before operation kills many patients. I do not think it necessary for the practitioner to make an accurate diagnosis before he recommends operation in these patients presenting the clinical picture of an acute abdominal condition. We really best serve the patient by calling surgical consultation in these cases before the distended abdomen, the persistent, agonizing pain, the high temperature, the vomiting, the rapid pulse and the anxious expression tell the tale of too much "watchful waiting."

CASES IN POINT

A brief report of a few of the recent cases will suffice to impress the picture in these cases of acute pelvic appendicitis:

CASE 1.—*History.*—A. R., white man, aged 30, gave a history of previous attacks of pain in umbilical region, nausea, pressing desire to urinate, followed by vomiting, severe pain just above pubes and passing of bloody urine. The present attack began twenty-four hours ago with sudden severe pain in umbilical region followed by nausea, vomiting and shifting of the pain to just above the pubes. Dr. Westrup found patient suffering intensely; both recti were intensely rigid; pressure over lower abdomen incited desire to urinate even though the patient had been catheterized; pulse 90, temperature 100. On the following morning the symptoms had somewhat subsided. Dr. Westrup diagnosed case as one of appendicitis.

Examination.—When I saw patient twenty-four hours after onset the abdomen was soft, but pressure near insertion of the right rectus muscle caused considerable pain and a desire to urinate; no tenderness at McBurney's point; temperature 99, pulse 80, and symptoms subsiding; leukocyte count 14,000. Small mass found on rectal examination.

Operation.—Patient felt so well on the following day that he wanted to go home but finally consented to operation. The appendix was found gangrenous and partially surrounded by omentum and adherent to the right posterior surface of the bladder.

CASE 2.—*History.*—O. H., white girl, aged 13, was suddenly seized with chill and fever followed by severe pain in umbilical region and vomiting three days prior to consulting Dr. Washington; the usual home remedies had been given without avail; her menstrual period was due and she thought her trouble was possibly due to this.

Examination.—Dr. Washington found pulse 120, temperature 104, abdomen distended and very rigid; there was no point tenderness in area described by McBurney; in fact, pressure over left rectus induced more pain than pressure over McBurney's point, bowels had moved but the pain was so severe and paroxysmal in character that patient complained a great deal. I saw the patient a few hours later and was impressed by the absence of pain at McBurney's point, the diffuse character of the pain and its location just above the pubes; also by the diffuse rigidity and high temperature and pulse rate. Patient was sent to the hospital, where a blood count showed leukocyte count of 18,000.

Operation.—Median incision confirmed Dr. Washington's diagnosis; the appendix was gangrenous and lying low down in the pelvis; numerous coils of distended small intestine were found glued together by fibrin.

CASE 3.—*History.*—A. F., white woman, aged 26, had been complaining for two days of discomfort just above pubes; the pain was not constant or severe, but the usual home remedies had not brought relief. Patient had vomited once, bowels had acted and she walked to the bath room without discomfort. Dr. Bewig saw the patient a few hours before I did; he found pulse 78 and temperature 100. The abdomen seemed slightly distended, but patient insisted that such was not the case; both recti were flaccid; deep pressure above the pubes caused pain, whereas pressure over McBurney's point was negative.

Operation.—Two days later the patient consented to operation because the pain had persisted and she was afraid of appendicitis. Median incision showed a swollen, slightly gangrenous appendix lying low down in the pelvis; there were no adhesions.

CASE 4.—*History.*—M. G., white man, aged 32, gave history of previous attacks, and had been told that he had appendicitis. The present attack began thirty-six hours before with severe pain in lower abdomen; pain became more or less constant; vomiting frequent.

Examination.—Expression was somewhat anxious; abdomen distended; both recti intensely rigid; tenderness over greater part of lower abdomen; rectal examination negative; pulse 110; temperature 102; leukocyte count 18,000; urine contained pus and casts.

Operation.—Immediate operation revealed swollen gangrenous appendix lying behind and to the right of the bladder; the omentum was adherent to base of appendix and bladder.

CASE 5.—*History.*—H. H., white man, aged 21, had been sick three days. Illness began with cramplike pains in lower abdomen followed by nausea. Purgative had been given but bowels had not acted. The fact that examination did not show rigidity of right rectus and McBurney point tenderness confused the medical attendant. Patient entered hospital with a diagnosis of intestinal obstruction.

Examination.—Expression was very anxious, abdomen greatly distended, legs flexed, pulse 130, temperature 101, leukocyte count 16,000, mass in pelvis, both recti intensely rigid; patient presented usual picture of advanced peritonitis.

Operation.—A gangrenous perforated appendix was found lying in pelvis; intestines intensely congested and of a mahogany color; parietal peritoneum intensely congested; the pelvis was filled with pus.

COMMENT

Numerous additional cases would only tell the same story. We must not expect the classic picture in these pelvic cases. I am confident that the mere dissemination of the knowledge that it is possible to have appendicitis without the classic McBurney point tenderness, right rectus rigidity, etc., and that the appendix frequently lies in the pelvis and may cause left sided pain and left rectus rigidity, etc., will be the most potent factor in bringing these cases of acute pelvic appendicitis to surgical attention sufficiently early to enable us to reduce the mortality to the minimum.

CIRCUMSCRIBED PURULENT LEPTOMENINGITIS DUE TO FRONTAL SINUSITIS

SAMUEL LEOPOLD, M.D.
Instructor in Neurology and Neuropathology, University of Pennsylvania, School of Medicine
PHILADELPHIA

Circumscribed leptomeningitis of rhinogenous origin has been rarely noted by the neurologist, and only in the last decade or so by the rhinologist. The literature on intracranial, oculo-orbital and cerebral complications secondary to disease of the accessory sinuses of the nose has become so extensive that more recent writers have concerned themselves with complications arising from individual sinuses.

Purulent leptomeningitis from frontal sinusitis may occur with or without brain abscess; it may be in association with pachymeningitis or with an extradural abscess.

The seat of the lesion is chiefly on the convexity of one or both frontal lobes, with varying involvement of other portions of the brain. The symptomatology is that of sinus disease with accompanying meningitis. Three forms may be distinguished, a sudden apoplectic, quickly terminating; a slow, insidious, protracted type; and an intermittent form, with long interval before the meningitic attack.

Case 1 illustrates the sudden onset of meningitis, after a period of intermittent sinus trouble.

CASE REPORTS

CASE 1.—R. K., errand boy, aged 14, was seen by Dr. G. on Nov. 20, 1914. The boy was suffering with pain in the head, the right eye was swollen and there was pain over the right orbit.

He gave a history of repeated head colds. In the latter part of September, 1914, he developed a severe head and chest cold, which continued for two weeks and was accompanied by profuse purulent discharge from the nose.

On November 14 he contracted fresh head cold, and on the next day he complained of pain shooting through the head, eyes and teeth. The following day there was swelling around the right eye and slight exophthalmos.

At the time of the patient's first visit he complained of pain over the right frontal sinus region, intense frontal headache, and there was closure of the right eyelid, with some bulging of the eyeball.

Examination of the right frontal sinus showed pus. A portion of the middle turbinate was removed and considerable pus drained away. On Saturday he was examined again. His symptoms had improved, but protrusion of the eye was still marked. The swelling over the right orbital ridge was incised, but no pus was found. The next day he developed severe headache over the frontal and occipital regions, and a deeper incision over the frontal sinus released considerable pus.

Several days later he developed paralysis of the opposite side of the body, of the leg chiefly. The temperature became from 102 to 104, pulse of from 90 to 100. A Killian operation was performed. There was a great quantity of pus, and the septum between the sinuses was found necrosed; so the sinuses were entered and cleansed. The temperature dropped to normal and the patient felt much better. For two days his condition was good. The next day his temperature rose suddenly, he became stuporous, and his pulse became rapid and weak.

I first saw the patient the afternoon of the day he died. He was stuporous, showed paralysis of the left leg and partial paralysis of the left arm. He had ankle clonus and the Babinski sign, with rigidity of neck.

A diagnosis of circumscribed purulent leptomeningitis was made, but operation was not advised, owing to the moribund condition of the patient. He died two hours later.

Necropsy.—On opening the cranial cavity, the dura was found smooth and glistening, but bulging. On opening the dura, a purulent exudate was found over the right frontal lobe, extending as far as the postcentral gyrus. A small exudate was noted over the right temporal lobe and over the superior surface of the cerebellum. The pus had also escaped into the right middle fossa. The anterior and posterior fossae were free. The frontal sinus was free of pus, but showed a thick clot of blood and some granulation tissue. The diploic veins were markedly congested. The longitudinal sinus was filled with pus. The roof of the orbit showed necrotic bone, and there was pus in the orbit. The right anterior and posterior ethmoid sinuses, as well as the sphenoid sinus, showed normal mucous membranes.

Pathologic Summary.—The pathologic findings revealed a purulent leptomeningitis, limited chiefly to the right frontal lobe, extending as far as the central gyri. There was some basal meningitis and a small exudate on the superior surface of the cerebellum. The longitudinal sinus was filled with pus. Necrotic bone was found in the orbital roof at the juncture with the ethmoid.

CASE 2 illustrates sudden onset, without showing any localizing symptoms, death occurring within a few days. I had the opportunity of studying only the brain. The clinical notes were obtained from the hospital record.

The patient, a young woman of 22, was taken ill with cold in the head, severe headache, some nausea and vomiting. There was no record in the history referring to nasal trouble. On admission to the hospital her condition was that of semistupor, alternating with delirium. The pupils were equal and reacted to light and in accommodation. There was some rigidity of the neck, and the knee jerks on both sides were exaggerated. Kernig was obtained on the right side. The Babinski sign was absent on each side. Lumbar puncture showed cloudy cerebrospinal fluid, polymorphonuclear cells 89 per cent., lymphocytes 10 per cent. No tubercle bacilli or meningococci were found. Patient could be made to talk, but remained usually in semistupor. The pulse was from 100 to 140, and the temperature varied between 100 and 103. Death occurred in five days.

Necropsy.—On opening the skull, the dura was found smooth and free from adhesions. The veins were congested. Removal of the dura showed a thin, purulent exudate over the convexity of both frontal lobes, reaching as low posteriorly as the central convolutions, and extending laterally to the sylvian fissure on each side. The remaining surface of the brain, as well as the base, was free from exudate. Examination of the frontal sinuses revealed a congestion of the mucous membrane, but no free pus. There was some exudate over the cribriform plate of the ethmoid, and the longitudinal sinus was distended with blood.

Diagnosis.—Influenzal meningitis following frontal sinusitis and ethmoiditis.

Pathologic Summary.—Purulent leptomeningitis, confined chiefly to the convexity of both frontal lobes; frontal sinusitis, and ethmoiditis.

These two cases, as well as a study of the literature, show that the symptoms, as revealed in Case 1, are frequently preceded by weeks, or even months of nasal catarrh, with frontal headache; or, as in Case 2, they may occur after only a few days, following an attack of influenza. The edema and discoloration of the eyelid, with tenderness over the orbit, as in Case 1, frequently precede the cerebral symptoms when disease of the wall of the sinus or orbit is present. The frontal headache is present in nearly all cases, though pain in the head is not limited to that region. The pulse and temperature are not characteristic. Rigidity of neck and Kernig's sign, though noted in both my cases, are not frequent symptoms. Paralytic symptoms are noted usually in a later stage of the disease. Irritability and restlessness, alternating with clouding of the sensorium, are sometimes the only meningitic symptoms present; and death sometimes comes, as in Case 2, before the development of paralytic symptoms.

The pure meningitis following frontal sinus disease is less frequent than brain abscess, but much more frequent than thrombophlebitis. This is analogous to Korner's statistics on otitic meningitis. In 140 cases analyzed by Gerber, there were sixty-five cases of brain abscess, to fifty-one of meningitis.

The explanation of this phenomenon depends on the route of infection, which may be direct, through the interstices or necrotic walls, or indirect, through the venae perforantes of the sinus and orbit, or through the lymphatics. According to Gerber, the most frequent route in the production of leptomeningitis is through disease of the dura, following disease of the posterior wall of the sinus. Disease of the anterior wall, with thrombosis of the longitudinal sinus, may produce it indirectly; and disease of the inferior wall, with necrosis of the orbital roof and thrombophlebitis of the veins, may also indirectly produce leptomeningitis. It is possible that the lymph channels may play as important a part as the diseased walls and veins. Zwillinger, in some recent experiments on animals, has investigated the relation of the perimeningeal lymph spaces — the subdural and the subarachnoid — with the lymph vascular nests of the frontal sinus, and has shown that a direct connection exists. This may explain the route of infection in Case 2, as well as in many others reported, in which the route was not clearly demonstrated. Logan Turner thinks that they play a subordinate rôle, for the operating table and necropsies have shown the infection spread as the result of caries of the contiguous bone.

There have been few cases reported in which operation led to recovery. Gerber found three out of fifty-one cases of meningitis, those of Herzfeld, Piffl and

Luc. To this we would add the case of Spiller, Shields and Martin, reported in 1908. This case, not noted in the reports of Gerber and Onodi, was the first case with recovery reported in America. The recovery in this case was supposed to be due to exposure of the diseased area to the air, but recent studies in experimental meningitis, by Kopetzky and Haynes, show that relief of intracranial pressure can cause recovery.

It seems that in many cases the dura escapes involvement, that incision is necessary in all cases in which absence of lesions on the surface is noted. This holds true, not only for the meningitic cases, but also for the subdural and frontal lobe abscesses.

The failure of recovery in most of these cases may be traced to several factors — the virulence of the infection, frequently streptococcic, with rapid termination of the case in several days (cases of Mahu, Wertheim and others); the absence of meningitic symptoms (cases of Blessig-Tiling, Lendentu and others); the failure to recognize the underlying process sufficiently early; and finally, the presence of an apparently normal dura, preventing further operation.

FREE TUMOR DIAGNOSIS AS A FUNCTION OF STATE PUBLIC HEALTH LABORATORIES *

LEVERETT DALE BRISTOL, M.D.
Professor of Bacteriology and Pathology, University of North Dakota, School of Medicine; Director, State Public Health Laboratories
UNIVERSITY, N. D.

This study and report is based on a survey of the various states in regard to the existing facilities for the laboratory examination of specimens of suspected cancerous tissue. Through the agency of this report, it is the intention of the American Society for the Control of Cancer to consider the need for a general extension of such facilities under public auspices, and the means by which it may be accomplished.

METHODS OF INVESTIGATION

To obtain information as to what is being done in the different states at the present time, a questionnaire was sent to the directors of the various state public health or hygienic laboratories, and in some instances to the secretaries of the state boards of health. Answers to the following questions have been received from all of the forty-eight states:

1. Do you make pathologic diagnosis of tumor tissue in your state public health laboratory, or in any other state institution?
2. If these examinations are made, is the work done free of charge, or what is the amount of special fee asked for same?
3. Do you believe that such work should be done free of charge, either by state public health laboratories or other institutions in each state, as an important aid in the campaign against cancer?

In order to determine the value of free tumor diagnoses made by a state public health laboratory from the standpoint of the practicing physician and surgeon, a second questionnaire was sent to a large number of North Dakota doctors. The free diagnosis of tissues by the public health laboratory is required by law in that state, and has been carried on for nine years. The following questions were asked:

1. Do you send your suspected tumor specimens to the state public health laboratory for diagnosis?
2. If not, who makes your pathologic diagnoses?
3. Do you believe the average practitioner is prepared to make accurate microscopic diagnosis of cancer?
4. Do you think that early diagnosis is an important step in the prevention and cure of cancer?
5. Have the tumor diagnoses of the state laboratory been satisfactory in the past?
6. Do you believe that the doing of such work, free of charge, is of value as a public health measure in helping to control cancer?

RESULTS OF INVESTIGATION

Present Facilities for Pathologic Examinations in State Laboratories.—Of the forty-eight states, twenty-four have facilities for the diagnosis of suspected cancerous tissue either in their state public health laboratory or in some other state institution; while twenty-four do not attempt such work. Table 1 gives the names of such states.

TABLE 1.—FACILITIES FOR TUMOR DIAGNOSES IN PUBLIC LABORATORIES

States Which Have Facilities	States Which Do Not Have Facilities
North Dakota, Wisconsin, Indiana, Minnesota, South Dakota, Mississippi, Iowa, Florida, Alabama, Arkansas, Pennsylvania, New Hampshire, New York, Missouri, Michigan, North Carolina, Rhode Island, West Virginia, Kansas, Louisiana, Vermont, Delaware, Texas, Oklahoma. Total, 24.	Nebraska, Illinois, Virginia, Connecticut, Oregon, Colorado, Montana, Massachusetts, Washington, Idaho, Maine, Ohio, Nevada, Maryland, California, South Carolina, New Jersey, Georgia, Kentucky, Utah, Wyoming, Tennessee, Arizona, New Mexico. Total, 24.

Of the twenty-four states which have facilities for such work, nineteen carry on the work in their public health or hygienic laboratories, while five do the work in their state university laboratories of pathology or preventive medicine. Table 2 gives the names of such states.

TABLE 2.—METHOD OF MAKING TUMOR DIAGNOSES

States in Which They Are Made in State Public Health or Hygienic Laboratories	States in Which They are Made in State University Laboratories
North Dakota, South Dakota, Kansas, Vermont, Louisiana, Michigan, Indiana, Wisconsin, Mississippi, Florida, Alabama, Pennsylvania, New Hampshire, New York, North Carolina, West Virginia, Rhode Island, Delaware, Oklahoma. Total, 19.	Iowa, Minnesota, Arkansas, Missouri, Texas. Total, 5.

Of the twenty-four states which have the facilities mentioned above for making tumor diagnoses, five charge specified fees, six charge all persons except indigents, and thirteen make no charge in any case. Table 3 gives the names of such states.

Value of Free Tumor Diagnosis as an Aid in the Campaign Against Cancer.—General Opinions of State Authorities: From information available, it seems that opinions of authorities differ somewhat as to whether or not tumor diagnoses should be made free of charge either by state public health laboratories or other state institutions, as an important aid in the campaign against cancer. Table 4 gives the ideas of the various state authorities on this point, showing that more are in favor than against the plan; in all instances these

* Report of a committee (consisting of Dr. F. C. Wood, Columbia University; Dr. James Ewing, Cornell University, and Dr. L. D. Bristol, chairman, University of North Dakota) appointed by the American Society for the Control of Cancer.

are the personal opinions either of the director of the laboratory or of the executive officer of the state board of health.

TABLE 3.—CHARGES FOR MAKING DIAGNOSES

States Charging Special Fees for Tumor Diagnoses	States Charging Fees for All Except Indigents	States Charging No Fees for Tumor Diagnoses
West Virginia, New Hampshire, South Dakota ($3), Wisconsin ($5), Michigan (free if specimen is sent by health officer). Total, 5.	North Carolina ($5), Arkansas ($5), Alabama ($5), Indiana, Vermont ($2), Texas. Total, 6.	North Dakota, Rhode Island, Missouri, New York, Pennsylvania, Florida, Mississippi, Iowa (if gross specimen is sent for teaching purposes), Minnesota, Louisiana (work done only for indigents), Kansas (work done only for indigents), Delaware, Oklahoma. Total, 13.

TABLE 4.—OPINIONS AS TO VALUE OF FREE DIAGNOSES

States Approving the Plan of Free Tumor Diagnoses as an Aid Against Cancer	States Not Approving the Plan of Free Tumor Diagnoses as an Aid Against Cancer	States Giving No Opinion
North Dakota, Kentucky, Rhode Island, Missouri, Maine, New York, Idaho, Washington, Montana, Colorado, Pennsylvania, Connecticut, Florida, Illinois, Mississippi, Delaware, Tennessee, Indiana, Michigan, Louisiana (for indigents), Utah, Vermont, Kansas, Texas, Arizona, Oklahoma. Total, 26.	Iowa, Georgia, New Jersey, South Carolina, California, West Virginia, Maryland, Nevada, Ohio, Massachusetts, Oregon, Arkansas, Alabama, Virginia, Nebraska, Wisconsin, Minnesota, South Dakota. Total, 18.	North Carolina, New Hampshire, Wyoming, New Mexico. Total, 4.

The chief arguments received from the sources named above against the free diagnosis of tumor tissue in state laboratories are as follows:

1. "Diagnosis of tissue for cancer is merely a private consultation and is not regarded as public health work."

2. "The plan would savor too much of state medicine."

3. "As a rule the appropriation for the state laboratory does not warrant the doing of more work, and tumor diagnosis should not interfere with the diagnosis of the so-called communicable diseases."

4. "There is danger of spreading cancer cells into other parts of the body by the excision of small specimens for diagnosis."

The arguments in favor of the free diagnosis of tumor tissue as an aid in the campaign against cancer may be summarized as answers to the foregoing four objections:

1. Surgeon Carroll Fox of the U. S. Public Health Service says, in regard to the diagnosis of tissues for the presence of malignancy by state public health laboratories: "Such work is the legitimate work of the health department. The ultimate object of all health officers is to prolong life, and to secure this result in the case of cancer, an early diagnosis is necessary. It is, therefore, only right that the health officer, through his diagnostic laboratory, should lend all the assistance possible." This also is the opinion of a large number of other authorities who look on cancer as a public "menace" to be attacked by public officers, with public money.

2. From the foregoing point of view, if it is the duty of the health officer to prevent premature death from all causes, it is as much his duty to prevent death from cancer as from tuberculosis. For this reason, facilities for the diagnosis of suspected cancerous tissue should be offered free of charge in a state laboratory, just as facilities are offered for free sputum examinations without the cry of "state medicine" being raised.

3. It is to be conceded that tumor diagnoses should not interfere with the work more strictly related to the communicable diseases, and the latter should always have priority. Furthermore, it is not to be expected that such pathologic work can be carried on without sufficient appropriation to warrant it. This is not an argument against free tumor diagnosis in public health laboratories, but is simply an indication that the people of the state should be educated to the point where they will be willing to appropriate more money to cover this extra work.

4. It must be admitted that there is some chance that by cutting through healthy tissue into a malignant tumor, for the purpose of obtaining a specimen, metastases may be more rapidly spread. But in a large percentage of cases the advantage gained by a microscopic diagnosis is very much greater than the risk of spreading the disease by its proper removal for such a purpose. On this point Sondern has briefly stated the conservative opinion of a committee of the American Society for the Control of Cancer:

> In the removal of tumor tissue for diagnosis, the advantage of such microscopic examination, as well as the danger of aggravating the disease by this procedure, must be considered. In many cases the advantage of diagnosis outweighs the danger of removal of tissue for this purpose, and the procedure is justified in the opinion of the majority. The necessity for this may be determined by the skill of the clinician. Opposed to the procedure in general is the danger of aggravating the condition by the excision, and this varies according to the nature and the position of the growth. To cut through the skin into a malignant tumor of the breast in order to remove a piece for examination is generally discountenanced. Errors in diagnosis result from the excision of inflammatory tissue on the margin of a tumor when the section does not include tumor tissue, this being most frequent in the breast and prostate. Incisions into actively growing, deep-seated malignant tumors should be avoided, as this may disseminate infection through the vessels, may permit extension or accelerate growth by relief of capsular tension. There is little danger, however, from the proper removal of tissue from any superficial growth of the skin or mucous membrane. Crushing or kneading malignant tissue should be carefully avoided under all circumstances.

Admitting the foregoing statements, and giving wide publicity to them does not argue against the doing of such diagnostic work in public laboratories as an aid in the campaign against cancer. It simply means that physicians and surgeons should use judgment as to the specimens which they wish to remove for diagnosis.

We do not desire to argue against the value of frozen section work, or against any physician making his own pathologic diagnosis *if he is qualified to do such work*, any more than we would argue against his making bacteriologic diagnosis of sputum or throat cultures if he has had sufficient training to be accurate.

Other points have been raised by various authorities in support of the value of tumor diagnosis in public health laboratories, the most important of which are:

"It would tend to raise the general tone of surgical practice among men who have no hospital or laboratory affiliation."

"It would tend toward the diversion of material from strictly commercial laboratories, some of which are known to be grossly incompetent from the standpoint of their pathologic work."

Even to educate the public and the profession to *demand* a confirmation of a clinical diagnosis by a microscopic finding after operation would be of inestimable value in the recording of accurate vital statistics relating to cancer, in assisting the physician or surgeon to make reliable clinical diagnoses in the future, and in protecting the public from cancer quacks who always shun the microscope. It is difficult to collect a fee for a pathologic diagnosis after an operation has been performed; hence the value to the public and the profession at large by the doing of such work free of charge in public health laboratories. If clinical diagnoses were thus improved and cancer quacks were thus eliminated, the death rate from cancer would fall. Furthermore, if accurate mortality statistics are of value in combating all diseases (including cancer), and if the state health department is chiefly responsible for gathering such statistics, it would seem that it might be of great value even for the state to *require* the sending in of pathologic specimens from all persons dying of suspected, or clinically diagnosed, malignant disease. It is obvious that such required work would have to be done free of charge by state laboratories under the direction of competent pathologists.

Opinions of Physicians in One State in Which the Plan of Free Tumor Diagnosis Has Been Carried on for Nine Years: As a final argument in favor of our report, it may be of interest to give a few facts concerning the working of this plan of free tumor diagnosis in the public health laboratory of the state of North Dakota during the nine years since the laboratory was opened.

Replies to a questionnaire (outlined previously under "Methods of Investigation") were received from 175 physicians and surgeons from all parts of the state. Of this number, 125 send all of their removed tumor specimens to the state laboratory, ten send some of their material, and thirty-five do not send any of their specimens to that laboratory, while five give no information on this point.

Of those not sending their specimens of tumor tissue to the state laboratory for diagnosis, twelve make their own pathologic diagnoses, twelve send their specimens to commercial laboratories outside of the state, eight send their tumor tissue to some other surgeon of recognized ability in pathology, and three to a university pathologic department outside of the state.

Practically all (170) believe that the average practitioner in such a state as North Dakota is not qualified, nor has he the facilities, to make accurate microscopic diagnosis of cancer. Nearly all (168) agree that an early diagnosis is an important aid in preventing the spread of cancer, and in curing the disease. Of 175 physicians who answered the questionnaire, 170 thoroughly approve of the doing of such work, free of charge, in a state laboratory as a public health measure in helping to control cancer. With a few exceptions, practically all who have sent their specimens to the state laboratory have been satisfied with the diagnosis as made. In one or two instances the pathologic diagnosis did not coincide with the subsequent clinical history, but the few complaints made were chiefly based on the length of time occasionally necessary before a diagnosis could be received in parts of the state far removed from the laboratory.

Since the opening of the North Dakota Public Health Laboratory in 1907, about 1,000 specimens of tumor tissue have been examined free of charge, the number of specimens the first year (1907-1908) being twenty-four, while the number for 1914-1915 was 218, thus showing a decided growth in the amount of tumor diagnostic work demanded of the public health laboratory.

Undoubtedly the same results and opinions as given above would be obtained from the majority of states which have been undertaking such work, if a canvass of the practitioners of each state could be made.

RECOMMENDATIONS

Based on the foregoing study, the following recommendations are submitted as worthy of consideration in the campaign against cancer:

1. So far as consistent with local conditions, facilities should be offered under public auspices in each state for the diagnosis of tissue suspected of being cancerous. Preferably, these should be made free of charge.

2. The logical place for the doing of such work is the laboratory of the state health department. It is not to be supposed that such work will be given the preference over other work now being done by these laboratories.

3. To cover this work, in those states which have no such facilities, additional money should be appropriated.

4. Judgment must always be used by surgeons in the removal of suspected cancerous tissue for diagnosis, and the value of a microscopic diagnosis should appear to outweigh the risk involved before such a procedure is adopted.

VESICAL DRAINAGE

HISTORICAL REVIEW AND PRESENTATION OF A NEW APPARATUS *

EDWIN G. DAVIS, M.D.
Assistant Resident Urologist, Johns Hopkins Hospital
BALTIMORE

The numerous forms of apparatus that have been devised for the purpose of disposing of urinary drainage following suprapubic cystostomy are evidence of the difficulty of the problem. When we consider the conditions to be met, it is hardly to be hoped that an entirely satisfactory apparatus is possible, if by this we mean an apparatus that will permit no urinary leakage whatever, from the time of operation until the fistula is healed. The method of choice is that which most nearly approaches this ideal efficiency, which requires the least attention and which causes the patient the least inconvenience. In addition to the above requirements, the apparatus should be reasonably inexpensive and not too elaborate.

BRIEF REVIEW OF METHODS PREVIOUSLY DESCRIBED

Of the various forms of apparatus, the simplest is a rubber tube through the suprapubic wound draining the urine into a receptacle beneath the bed. This method works well temporarily, but the impossibility of maintaining a tight fit makes it unsatisfactory, because good siphon action depends on a constant supply of fluid and the exclusion of air from the bladder. The first mention of the suction exerted within the bladder by a column of urine descending in a tube was

* From the James Buchanan Brady Urological Institute.

made by Chiene[1] of Edinburgh in 1880. His article, however, referred, not to suprapubic drainage, but to drainage through the urethra by means of a retention catheter, the siphon action being dependent on the fact that the lower end of the drainage tube was immersed in a bottle of carbolized water, which overflowed into a basin. Clogging of the tube with mucus was prevented by "raising the bottle night and morning in order to make a back-flow, which cleans the instrument." When this natural siphon is used for suprapubic drainage, a loop or a U-bend in the descending arm, which has been frequently described, is an improvement, because here the urine collects until a sufficient quantity has accumulated to descend in the form of a solid column, or fluid piston, which exhausts the air behind it, thus producing intermittent suction within the bladder. Even up to the present time there appear in the literature occasional articles[2] calling attention to this natural siphon method of suprapubic drainage, and claiming for it advantages over other methods on account of its simplicity. Burckhardt[3] in 1889 solved the problem of suprapubic drainage by making also a perineal incision and inserting a tube. He stated that for five years he had made a practice of combining perineal drainage with every case of suprapubic cystostomy, following a method first used by Frère Côme (Jean Baseilhac) in the eighteenth century.

Numerous modifications have been described of the form of apparatus dependent in principle upon the suction exerted in a tributary tube by a column of water descending through a vertical tube from an overhead reservoir. Such forms of apparatus are familiar to all. This principle was first applied to surgery by Potain[4] in 1869, who used siphon suction for the drainage of empyemas. The earliest available description of such an apparatus applied to suprapubic drainage was that of E. H. Fenwick[5] in 1888, who says, "An irrigating can is placed on a chair at the bedside, and its tube, with a clip affixed to regulate the outflow, dropped into the chamber under the bed. The drainage tube from the bladder is then connected with it at an acute angle." An improved apparatus, utilizing the same principle, was described by Cathcart[6] of Edinburgh in 1895, and a modification of this the following year by W. W. Keen[7] of Philadelphia, who acknowledged Cathcart's priority. This was challenged by Dawbarn,[8] who described his own apparatus immediately after Keen's publication, stating that he had made use of it for four years. Referring to Cathcart's apparatus, he further stated that the idea of siphon drainage did not originate with Cathcart in England, but was first used in America about 1875 by Dr. Snow, a dentist in Buffalo. As a matter of fact, Cathcart and Dawbarn were both preceded by Fenwick and also by Spehl,[9] who in 1889 described a "siphon-laveur de la vessie." Since 1895 modifications have been described by Heaton, Walker, Wacobarn, Clerc-Dandoy, Connel, Hamilton, Chenoweth and others.

These methods are all essentially similar, in that they employ an overhead reservoir of water which is refilled at intervals, the tube descending from the reservoir being connected by a T to the tube from the bladder. They differ in their methods of mechanically interrupting the flow from the reservoir, with the object of producing intermittent siphonage. Chenoweth's[10] apparatus combined irrigation with drainage. Clerc-Dandoy[11] employed a urethral catheter for continuous irrigation of the bladder, the excess of fluid being drawn off by a suprapubic siphon. Kenyon and Poole[12] in 1909 described methods of making use of suction for various purposes in the operating room, and four years later Kenyon[13] described the application of the same principle to postoperative treatment. The form of suction was that produced by a filter pump or by a steam ejector, the suction being piped from the pump to the operating room or to the ward, and distributed along the baseboard to several beds. This form of suction was used not only for suprapubic drainage, but also for the drainage of various wounds from which the discharge was profuse and irritating to the skin, as in the case of fecal fistula. In order to render the excessive suction harmless, he devised an outer perforated tube, embodying the same principle as that described by Heaton[14] in 1898, which surrounded the inner suction tube in the wound, thus providing for a free circulation of air and preventing contact of the wall of the cavity with the suction tube. Heaton says: "The fluid, as fast as it collects in the cavity, trickles through the perforations of the outer tube and is then sucked up by the open end of the inner tube."

Kaczkowski[15] in 1899 used the same suction method, combined with a dumbbell-shaped rubber balloon, which was inserted into the suprapubic wound and then inflated, the suction catheter passing in through the center. The idea was that the balloon approximated the bladder wall and the abdominal wall, preventing urinary infiltration. Probably the most elaborate suction apparatus is that of Chetwood,[16] who in 1914 described a low-speed motor and pump constructed specifically for the purpose. The motor and pump are run continuously, the amount of suction being reduced by means of a needle valve between the pump and drainage bottle, the lowered pressure within which is measured by means of a vacuum gage. He also mentions having used a hydraulic suction pump applied to a water faucet in the patient's room and connected directly to the drainage bottle. In 1915 Ballenger and Elder[17] again described the use of the hydraulic suction pump in the patient's room, combining the drainage with irrigation. According to their method the tube is removed from the bladder after about ten days and

1. Chiene, J.: Bladder-Drainage, Edinburgh Med. Jour., 1880, xxvi, 516.
2. Madden, F.: A Plea for the Simple Method of Bladder Drainage, Lancet, London, 1908, i, 48.
3. Burckhardt, H.: Ueber Blasendrainage nach Sectio alta, Zentralbl. f. Chir., 1889, xvi, 737.
4. Potain: Bull. thérap., lxx, 66; quoted by Bryant: Aspiration Drainage in Empyema, Surg., Gynec. and Obst., iii, 296.
5. Fenwick, E. H.: Illust. Med. News, 1888-1889, i, 2; abstr., Ann. Surg., ix, 312.
6. Cathcart, C. W.: A Simple Form of Exhaustion Pump for Use after Suprapubic Cystotomy, Brit. Med. Jour., 1895, ii, 968.
7. Keen, W. W.: An Improved Apparatus for Drainage by Siphonage in Operations on Bladder, Chest and Other Cavities, Ann. Surg., 1896, xxiii, 174.
8. Dawbarn, R. H. M.: A Simple and Reliable Means of Bladder Drainage, Ann. Surg., 1896, xxiii, 499; A Simple Method of Drainage of the Bladder after Suprapubic Incision, ibid., 746.
9. Spehl, E.: Siphon-laveur de la vessie, Ann. d. mal. d. org. génito-urin., 1889, viii, 114.
10. Chenoweth, J. S.: A Device for Prolonged Irrigation and Drainage of the Bladder, Kentucky Med. Jour., July, 1908, vi, 313.
11. Clerc-Dandoy: Drainage de la vessie par l'irrigation continué après la taille suspubienne, xiii Cong. internat. d. méd., Sect. d. chir. urin., 1900, 143.
12. Kenyon and Poole: An Apparatus for Aspiration, Surg., Gynec. and Obst., 1909, ix, 675.
13. Kenyon, J. H.: Continuous Suction and Its Application in Postoperative Treatment, Surg., Gynec. and Obst., 1913, xvii, 115.
14. Heaton, G.: Note on the Drainage of Large Cavities after Surgical Operation, Brit. Med. Jour., 1898, i, 207.
15. Kaczkowski: New Method of Drainage of the Bladder after Sectio Alta to Prevent Urinary Infiltration, Centralbl. f. Chir., March 18, 1899; abstr., THE JOURNAL A. M. A., 1899, xxxii, 783.
16. Chetwood, C. H.: Drainage of the Bladder Following Suprapubic Operations, Med. Rec., New York, 1914, lxxxv, 602.
17. Ballenger and Elder: Jour. Med. Assn. Georgia, 1915, v, 132.

"the urine collected from the outer part of the incision under a glass bell-shaped cover . . . held in place with adhesive strips."

The methods dependent upon other means than suction are not so numerous. Fowler[18] in 1899, employing the principle of capillary drainage, used strips of gauze, one end tucked into the bladder and the other end lying on a rubber sheet, from which the urine drained into a urinal. For permanent suprapubic drainage, Gerrish[19] in 1892 used a silver plate rimmed with rubber and held in place by a belt and perineal straps. Through the center passed a tube which led from the bladder to a urinal. For the period immediately following operation he used a flexible siphon. In 1895 Dugan[20] described his modification of an S-shaped tube of hard material previously described by Senn, which retained itself in the bladder by virtue of its curve. Bloodgood's[21] apparatus, devised in 1896, for both "immediate and permanent" drainage, consists of a rubber bag held to the suprapubic region by a belt, and draining the bladder through a hard rubber tube inserted in the fistula. In England several forms of apparatus were described, dependent on a tightly fitting nonleak dam about the suprapubic wound. Colt's[22] article in 1905 described an oval inverted cup of glass, open at the top and grooved around the base for a tightly fitting rim of sheet rubber which was cemented to the skin by a solution of pure rubber dissolved in naphtha. Finckh,[23] in Germany, later reported favorable results from the use of Colt's apparatus. In 1907 Irving[24] devised a celluloid cap which depended upon elastic bands around the buttocks for its tight fit around the suprapubic wound. This was connected by two rubber tubes to a urinal between the patient's legs. A method of cementing a perforated piece of sheet rubber to the skin around the fistula and then folding the free edges of the rubber over to form a flattened tube which conducts the urine to a bottle was described by Sinclair[25] in 1909. McKenna[26] used a double rubber apron applied to the suprapubic region, the inner surface fitting closely to the skin.

VACUUM METHOD

The following is a description of the vacuum method as used at present in the James Buchanan Brady Urological Institute. This apparatus I have previously described,[27] but without the improvement in the form of a mercury manometer, which acts as a safety valve, permitting air to pass either in or out of the urine bottle as occasion requires. A glance at Figure 1 will give a general idea as to the principle of the apparatus. Within the large bottle is a vacuum, which is very gradually decreased in strength by leakage of air, through a minute capillary glass tube, from the smaller bottle, so that within the smaller bottle there is maintained an air pressure which is slightly less than one atmosphere. By virtue of this very slight difference in pressure, the urine is drawn out of the bladder, through the catheter and tube, and drips down into the small bottle, replacing the air which has leaked into the vacuum. The only care necessary is to empty the urine bottle when it fills, and to exhaust the air from the vacuum bottle at intervals of not less than forty-eight hours.

In the diagram (Fig. 2) the relative proportions are somewhat distorted for the sake of clearness. The bottles V and U have a capacity of 8 and 2 liters, respectively. The larger (V) is known to the trade as a two-gallon, narrow-mouth packing bottle, and the smaller is an ordinary two-quart mineral-water bottle. Bottle V is provided with an air-tight, four-hole rubber stopper through which pass two L-shaped pieces of glass tubing, one straight piece and one T. Bottle U has a two-hole stopper with glass tubes, as shown in the diagram. Catheter C, at the very tip of which there are several small perforations, passes into the bladder through the suprapubic wound, where it is held by strips of adhesive plaster, and is connected with the urine bottle by a rubber tube, with a lumen not more than 5 mm. in diameter. The only means of communication between bottles U and V is through the minute capillary tube (CT), which hangs within the vacuum bottle and which makes the rate of air flow from the smaller to the larger bottle exceedingly slow. The small mercury manometer, which also hangs within the vacuum bottle, and which measures the air pressure within the urine bottle, will be described below.

The capillary tube is shown in detail in Figure 3. The outer protecting sheath is a large glass tube about 1 cm. in diameter and 10 cm. long, with a constriction at the middle to support the cotton filter (F). At either end this tube resembles the open end of a vial, the glass being grooved to fit a screw-cap which holds the rubber stopper tightly in and withstands the inside air pressure. Both stoppers and screw-caps are perforated for smaller glass tubing. The air, coming from the urine bottle, enters through the upper stopper, then passes through the tightly packed cotton plug (F), where it is filtered, and finally forces its way through the capillary tube (CT) and on into the vacuum. The capillary tube is made from a piece of glass tubing 6 mm. in diameter, which is drawn and then redrawn to form an exceedingly fine, flexible, hairlike tube, the actual lumen of which varies between 30 and 40 microns, according to its length. Since the making and testing of these capillary tubes is quite complicated and time-consuming, it is an economy to buy them.

The manometer, with its two bulbs, as described below, is also made with some difficulty. For these reasons, and on account of the inconvenience of assembling the various other small parts, arrangements have been made with the Willms Surgical Instrument Company of Baltimore to furnish the entire apparatus. The method of testing the capillary tube has been previously described[27] in detail. In brief, the rate of air flow through the capillary tube is determined and regulated by connecting the large end with a vacuum of known strength, and causing the air which enters through the tube to bubble through a column of water as it is drawn into the vacuum. The most satisfactory caliber of capillary tube has been found to be that which permits an air flow of such a rate that seventy to eighty air bubbles per minute pass through the

18. Fowler, G. R.: A New Method of Drainage of the Bladder after Suprapubic Cystotomy, New York Med. Jour., 1889, l, 257.
19. Gerrish, F. H.: An Appliance for Preventing the Chief Annoyance Attending a Permanent Opening in the Bladder, Tr. Am. Surg. Assn., 1892, x, 235.
20. Dugan, W. C.: Jour. Cutan. and Gen.-Urin. Dis., 1895, xiii, 249.
21. Bloodgood, J. C.: A New Apparatus for the Immediate and Permanent Drainage of the Urinary Bladder after Suprapubic Cystostomy, Bull. Johns Hopkins Hosp., 1896, vii, 64.
22. Colt, G. H.: The Suprapubic Dressing, Lancet, London, 1906, ii, 860.
23. Finckh, E.: Zur Nachbehandlung der suprapubischen Cystotomie, Beitr. z. klin. Chir., 1908, lix, 78.
24. Irving, H.: The After-Treatment of Cases of Suprapubic Cystotomy: a New and Economic Method, Lancet, London, 1907, ii, 1756.
25. Sinclair, H. H.: The Control of Urinary Drainage after Cystotomy, Ann. Surg., 1911, liii, 387.
26. McKenna, C. M.: A Device in Suprapubic Openings, Surg., Gynec. and Obst., 1912, xiv, 635.
27. Davis, E. G.: A Vacuum Apparatus for Suprapubic Drainage, Surg., Gynec. and Obst., 1915, xxi, 245.

water, from a tube with a lumen 4 or 5 mm. in diameter, into a vacuum that will sustain a column of mercury 60 cm. in height. The piece of rubber tubing (see Fig. 2) attached to the lower end of the capillary tube obviates danger of breakage, by swinging as the bottle is carried.

The small U-shaped manometer, of glass tubing with a lumen of 5 mm., shown in detail in Figure 4, both indicates and regulates the air pressure within the urine bottle. It is placed within the vacuum bottle, as is the capillary tube, merely that the apparatus may be compact and safe from danger of breakage, but it connects directly with, and is really a part of, the equipment of the small bottle. It is shown in Figure 2 that this manometer communicates directly, by means of the T-tube, with the urine bottle, and that one arm passes in through the stopper of the vacuum bottle, while the other passes out again and communicates with the outside air. In the horizontal portion of the U-bend is a small amount of mercury (Hg), which, if sufficient pressure is exerted, will permit air to pass in either direction. Just at the lower end of the arm which communicates with the outside air is a small bulbous swelling in the glass which acts as a reservoir for the mercury. The bulb in the other arm, located about 5 or 6 cm. from the bottom, is merely to prevent the mercury from jumping out of the tube when the air bubbles through. In case the vacuum draws the air from the urine bottle more rapidly than it is replaced by urine, there will be a gradual decrease in pressure within U, as will be indicated by a very slow rise of the mercury in the arm of the manometer with higher bulb. But this pressure cannot continue to decrease, because the amount of mercury is limited, and after it has attained an elevation of about 20 mm. the supply of mercury in the lower bulb or reservoir has been consumed and air is allowed to bubble through, passing into the urine bottle. The direction of the air flow is as shown by the upper arrow in Figure 4.

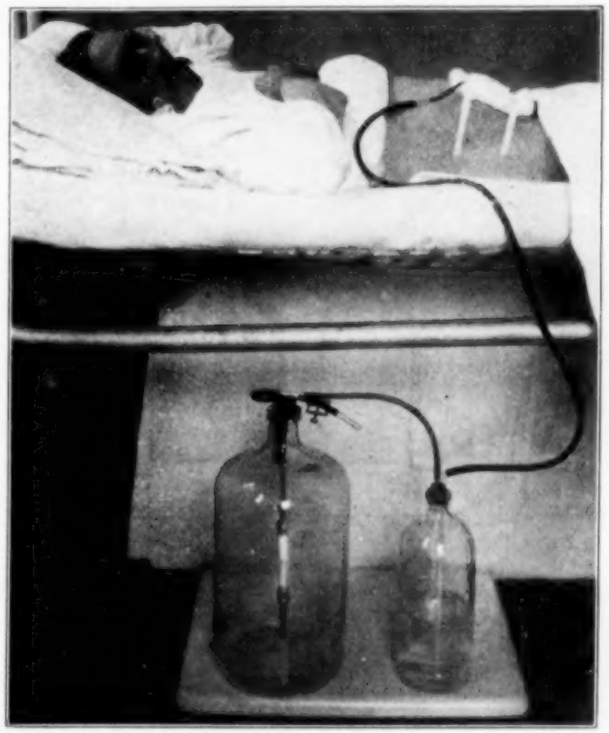


Fig. 1.—Entire apparatus in position. The bottles may be placed on the floor, or, in order to facilitate the moving of the bed, they may be suspended by an iron framework.

We thus have a safety valve which prevents the pressure within the urine bottle from differing from atmospheric pressure by more than 20 mm. of mercury, and which therefore prevents the catheter from exerting more than the gentlest suction within the bladder. Of course the amount of suction attainable varies directly with the amount of mercury placed in the manometer, and remains constant wherever desired. A very strong suction might be produced by making a manometer with a longer arm. For suprapubic drainage, a suction equivalent to 20 mm. of mercury, or even less, is sufficient. On the other hand, it is occasionally necessary that air pass through the manometer in the other direction, these occasions being when the rate of urinary secretion is sufficient to establish a siphon. The urine then flows into the urine bottle more rapidly than the air escapes through the capillary tube, and therefore the air pressure within the urine bottle becomes slightly more than one atmosphere. But this positive pressure does not immediately check the siphon flow, because the descending column of urine is about 40 cm. in height, which is equivalent to about 30 mm. of mercury. Before a positive pressure of more than perhaps 3 or 4 mm. has been attained, the mercury, with very little resistance, is displaced from the horizontal arm of the manometer into the lower bulb, where it spreads out, allowing the air to bubble by and escape through the open tube, and thus the siphon is permitted to continue to flow. This rapid siphon flow is only occasionally established; perhaps every other day or two with some patients, and not at all with others. The manometer, on these occasions, allows the escape of air and prevents leakage, which otherwise would occur in case the siphon flow should be checked by compressed air. In brief, the capillary tube takes care of the average urinary secretion, and the siphon action provides for any unusual excess, the mercury manometer making the siphon action possible.

During the preparation of this article I find that Perthes[28] in 1895 made use of a somewhat similar form of manometer, which permitted the entrance of air when a certain degree of lowered pressure was reached, and thus controlled the amount of suction produced by an apparatus devised for the drainage of empyemas. His manometer, however, made no provision for the escape of air, and his apparatus differed radically from the one I have described.

For renewing the vacuum, the ordinary laboratory hydraulic pump or filter pump (Fig. 6) is used, bottle V being disconnected from bottle U and carried to the pump, which may be located anywhere in the hospital. This filter pump is inexpensive and may be purchased from any laboratory supply house, together with a rubber-lined coupling which slips on to any water faucet; or, if a more permanent fixture than that shown in Figure 6 is desired, it is well to use a coupling which attaches to the faucet by means of screw threads. To exhaust the bottle the screw clamp is opened and the tube attached to the pump, the water

28. Perthes, G.: Ueber ein neues Verfahren zur Nachbehandlung der Operation des Empyems und zur Beseitigung des Pneumothorax, sofern er auf einem Defekt der Thoraxwand beruht, Beitr. z. klin. Chir., 1895, xx, 37.

being allowed to run perhaps seven or eight minutes, or any length of time in excess of this. The amount of time necessary, of course, varies with the size of the pump and the rate of the water flow. When the bottle has become sufficiently exhausted, a peculiar sucking noise is produced, similar to the sound caused by screwing the screw clamp shut while the water is running. The vacuum thus produced, which is of sufficient strength to sustain a column of mercury 750 mm. in height, will last at least forty-eight hours, providing the lumen of the capillary tube is of the correct diameter. Even after three days the vacuum bottle will not have become quite filled with air, and on two occasions, when the bottle was forgotten and allowed to run seventy-two instead of forty-eight hours, there was no leakage. After forty-eight hours, however, leakage might occur, because the rate of air flow, and therefore the amount of suction, varies inversely with the amount of air which is present in the vacuum bottle. For this reason the routine of renewing the vacuum every forty-eight hours was adopted.

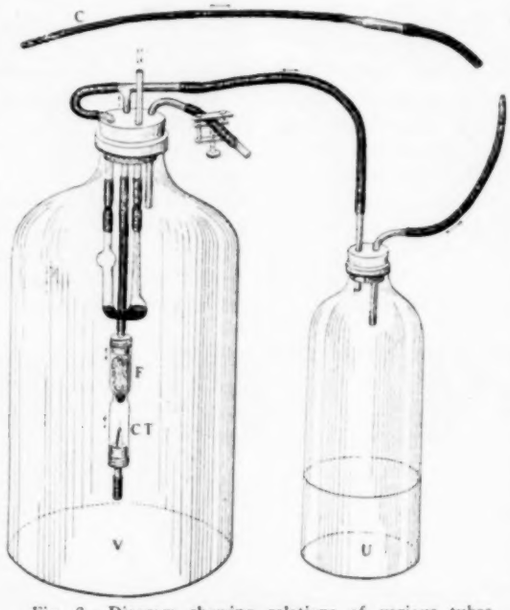


Fig. 2.—Diagram showing relations of various tubes. Arrows indicate direction of air flow.

The management of the apparatus is as follows: At the time of operation a small soft rubber tube or a large catheter, very near the tip of which are several small perforations, is left in the bladder. In case a prostatectomy has been done and there is much bleeding, it is necessary to use a large tube at first, and then substitute a smaller one later on. A tube with a lumen 5 mm. in diameter serves the purpose admirably, and, if there is no bleeding, may be used from the start. Bladder irrigations will prevent clogging of the tube with mucus and pus, but these are seldom necessary oftener than every three or four days, unless there is a marked cystitis. Most cases will drain well with no irrigations at all. When the tube or catheter is changed, which need not be more frequently than every three or four days, it should be replaced well down into the bladder. It should fit the sinus approximately, but, in order to insure perfect drainage, it need not fit tightly. Smaller catheters are substituted as the fistula granulates, one even as small as a 14 F. draining perfectly well. The rubber stopper must be kept tightly in the urine bottle. Care must be taken that the latter be emptied before it overflows, as otherwise urine would be drawn over to the vacuum bottle and the capillary tube clogged and ruined. For the same reason it is essential that, of the two glass tubes ending within the urine bottle, the one from which the urine drips should be the longer.

Fig. 3.—Detail of capillary tube, with outer protecting glass sheath; F, cotton filter; CT, capillary tube.

One may test the apparatus by simply compressing the tube connecting the two bottles, which has the same effect as a clogging of the catheter, and which should cause a slow rise of the mercury in the arm of the manometer up to a height of about 20 mm., and then a quick fall, due to the passage of an air bubble. Failure of the mercury to rise indicates either that the vacuum needs renewal or that the urine bottle has been allowed to overflow, thus clogging the capillary tube. The capillary tube and the manometer are delicate and should be handled with care. When once suspended within the vacuum bottle, they are safe and may remain permanently undisturbed. A small square pad of cotton or gauze, with a slit cut to the middle for the catheter, has been found to make a convenient dressing, strips of adhesive plaster holding both pad and catheter in place. Allowing the patient to sit up in a chair makes the drainage none the less perfect, the bottles being placed upon the floor by the side of the chair. A smaller, but shorter-lived, vacuum bottle has been used, and the patient allowed to roll about in a wheel chair with the two bottles upon the foot-board. While the patient is in bed, an iron framework is used, which suspends the bottles a few inches above the floor and permits the bed to be moved about with more convenience.

As the case records below show, the incisions are kept, not almost dry, but absolutely dry, and without a drop of urinary leakage for weeks at a time. The complete lack of moisture is shown by the fact that the dressing becomes adherent to the granulation tissue about the catheter. Another feature is the very slight amount of suction, which is just adequate and no more, and which permits the use of an unprotected suction catheter in the bladder with no damage to the mucosa and no discomfort to the patient. The catheter may therefore be decreased to a very small size as the fistula granulates, the interval between the removal of the catheter and the final healing being thus reduced to a minimum. Although the above detailed description is complicated, the apparatus itself is in a simple and compact form, and is automatic, being enclosed within a bottle which need never be uncorked. It requires minimum attention, and its action is not dependent on a water supply in the room, or on a motor. In all cases the sutured portions of the wound healed by first intention.

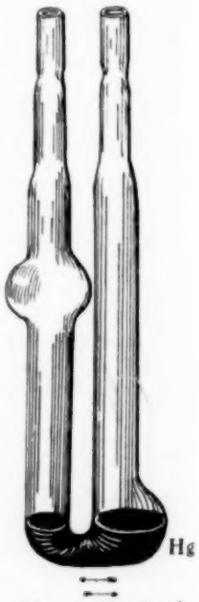


Fig. 4.—Detail of mercury manometer. Air may pass through in either direction, as indicated by the arrows; Hg, mercury.

CASE REPORTS

The following six cases are the last of a series of twenty-two. An accurate record of leakage was not kept in the other seventeen, but they did not differ materially from these here presented.

CASE 1.—The patient entered the hospital with a suprapubic cystostomy done elsewhere for drainage. The prostate was removed by the perineal route, and the vacuum drainage apparatus connected to a No. 14 French catheter in the suprapubic fistula. On the tenth day there was drainage of urine over the abdomen due to a clogging of the catheter with mucus, which was the only urinary leakage, during the entire convalescence, from either the suprapubic or the perineal wound. The suprapubic catheter was left in position for a period of thirty days, being changed every fourth or fifth day. Following its removal, the edges of the tiny fistula approximated, there being no urinary leakage whatever.

CASE 2.—A suprapubic cystostomy was done on account of a recto-urethral fistula. Continuous drainage was kept up for twenty-nine days. During this period the abdomen became wet once, on the fourteenth day, due to a clogging of the catheter, and with this exception remained entirely dry at all times. The catheter was changed every fourth or fifth day; there were no bladder irrigations.

CASE 3.—A suprapubic cystostomy was done on account of a periurethral abscess. From the viewpoint of efficient drainage this result was the most unsatisfactory of the entire series, probably because of the fact that the patient was continually delirious and in constant motion. He frequently tampered with the drainage tube and in fact pulled the catheter out of the bladder several times. The urinary leakage was quite marked on the third, fourth, fifth and sixth days, and also on the eleventh and seventeenth. Drainage on the other days, however, was perfect. There were no bladder irrigations. The patient left the hospital on the eighteenth day.

CASE 4.—A suprapubic prostatectomy was done following an incomplete perineal prostatectomy at another clinic some months previously. Continuous drainage was maintained for twenty-five days, there being urinary leakage on the first, second, and fourteenth days. The first leakage occurred by the catheter becoming clogged with mucus and pus, the result of an alkaline cystitis. This cystitis, which was quite severe, cleared up after three days. Leakage on the fourteenth day was due to the fact that the catheter was not placed well down into the bladder. Although the catheter was not removed until the fistula had become quite small, suprapubic drainage persisted until a retention catheter was placed in the urethra some days later. During the first ten days after operation, daily bladder irrigations were given.

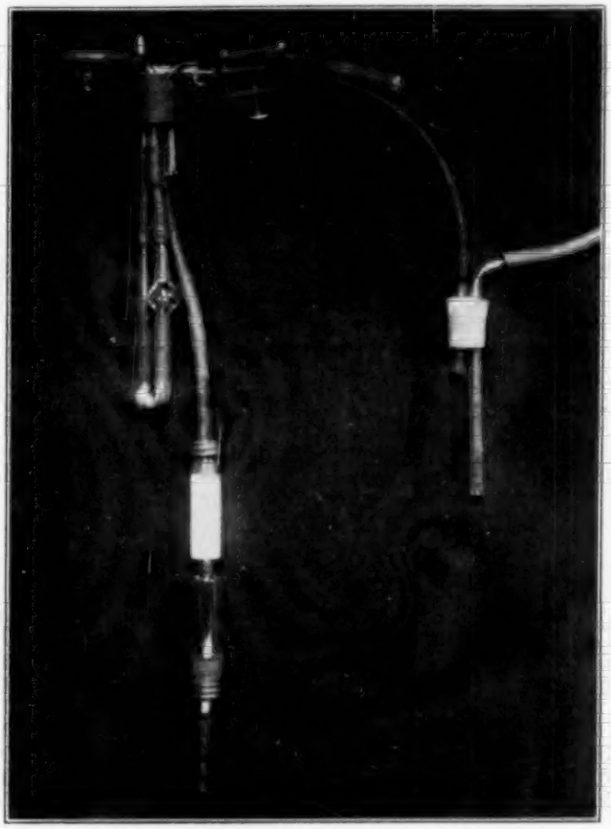


Fig. 5.—Capillary tube, manometer, rubber stoppers and connecting tubing, shown without bottles.

Fig. 6.—Filter pump and rubber-lined coupling for attaching to faucet without screw threads.

CASE 5.—Suprapubic drainage was necessary on account of an impermeable urethral stricture. Up to the present, the thirty-ninth day after the operation, the patient has been at all times entirely dry. The suprapubic catheter has been changed every fourth or fifth day.

CASE 6.—Through a suprapubic incision, a large pedunculated vesical tumor was excised with the cautery, and on account of the presence of mucus and blood and bits of slough, a drainage tube larger than usual was sutured into the bladder. A large tube, however, does not act well as a siphon. For this reason, the suction was connected to a catheter passed into the bladder through the large tube, the latter serving merely as a guide. Up to the present, the sixth day after the operation, there has been no leakage, the catheter having been changed once. When this method is used, it is necessary that there should be a water-tight joint where the catheter enters the larger tube. This is easily made by the use of a piece of large glass tubing about 5 cm. long, one end of which has been drawn out to such a size that it just admits the catheter, and the other end fitting tightly into the end of the large rubber tube. Where the catheter enters the glass tube, a small cuff of elastic rubber tubing, overlapping both, serves to prevent leakage and keeps the catheter from slipping. Thus, when it is necessary to remove the catheter, it may be easily replaced and retained at any depth in the bladder. It is advisable that the large tube be of such a length that this joint may lie in a horizontal position on the abdomen.

COMMENT BY DR. HUGH H. YOUNG

This ingenious apparatus, invented by Dr. Davis, has revolutionized the technic of urinary drainage at our clinic, completely transformed the postoperative treatment, changed the condition of the patient from soggy discomfort to cleanly comfort, and produced healthy dry granulating wounds in place of the unhealthy water-logged wounds with adherent urinary salts which we used to see. The devices upon which this automatic apparatus depends are as simple as they are clever; the preparation of the vacuum bottle every two days is an easy matter, and the man-

agement of the apparatus free from difficulties and complications. It is destined to do much for urinary surgery, as well as for other fields requiring constant drainage.[29]

THE SUPERNUMERARY URETER

REPORT OF A CASE OF COMPLETE UNILATERAL DUPLICATION

A. R. SIMON, M.D.
AND
H. O. MERTZ, M.D.
LAPORTE, IND.

Reports of supernumerary ureters are becoming more frequent, which very frequency demands records of all such cases, as it emphasizes the possibility of the existence of such an anomaly in every obscure condition of the upper urinary tract. While congenital change in a ureter may be associated with corresponding variation in the kidney, the ureteral condition, whether it be an alteration in form,[1] in location,[2] or in number,[3] will not infrequently be the principal factor in the production of a pathologic condition.

REPORT OF CASE

History.—Mrs. J. W., Polish, aged 26, with negative previous history, during the forenoon of April 15, 1914, experienced a sudden severe pain in the upper right abdomen, relieved somewhat by pressure, with no tendency to radiation and not associated with nausea or vomiting. The urine contained macroscopic blood, and a moving renal calculus was suspected; further diagnostic measures at this time, however, were refused. The patient was again seen, Aug. 7, 1915, when she came complaining of a marked dysuria with a constant throbbing pain over the bladder region. She was having frequent bladder spasms, at which time a few drops of bloody urine would be expelled. While the severe abdominal pain had not been repeated, during the past sixteen months she had had periods of bladder irritability. Her present attack began four months before, and gradually grew worse, until when seen she was having no rest night or day. She had missed the last two menstrual periods.

Physical Examination.—Palpation elicited tenderness over the bladder region, and vaginal examination, with pressure on the trigon of the bladder, was extremely painful. The terminal portion of the right ureter as palpated by the vagina was prominent and sore. There was a dull ache over the right kidney posteriorly, and deep fist percussion over this area produced pain. The temperature was 99.2, the pulse 100. The blood Wassermann was negative.

Catheterized bladder urine, 1½ ounces, contained 0.25 per cent. albumin, from five to ten pus cells and from ten to twelve blood cells to the ⅛ objective, with few short strings of streptococci. The last few drops of urine, as they flowed from the catheter, were red with fresh blood. Catheterization was painful.

Cystoscopic Examination.—Cystoscopy was performed, Aug. 14, 1915, and demonstrated a violently inflamed trigon with flakes of pus and mucus clinging to its raw surface. Just to the right of the median line, situated on the posterior margin of the trigon, was a small papilloma. Later twice applying the high frequency spark caused it to disappear entirely. The left ureteral meatus was normal in contour, but located at an abnormally high position in the bladder. On the right side of the bladder at its usual location was the right ureteral orifice, edematous and congested, while downward and inward from this meatus, in the substance of the trigon, was a third opening, almost round, larger than the normal and devoid of the normal liplike folds. The inflammatory process centered about this opening. There were two small ulcerations located as indicated in Figure 1. The remainder of the bladder was normal.

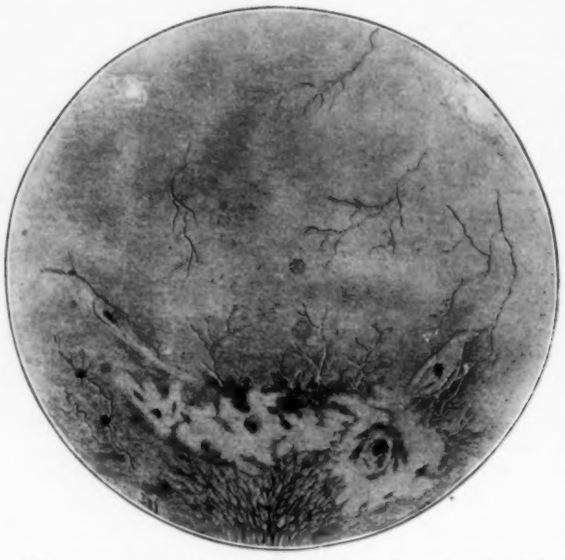


Fig. 1.—Cystoscopic findings demonstrating three ureteral meatuses. Note the irregularity of the bladder picture and that the inflammatory process completely surrounds the abnormal right opening, it seemingly being more intense in this region.

Urine was observed coming from the left and upper right openings in a normal manner, while from the lower right opening it could be detected only at long intervals and then not with normal force. At a later examination, Sept. 5, 1915, the opening was found entirely covered with mucus. It was watched for several minutes, but no urine was seen passing from this opening; but when with the tip of a ureteral catheter the mucus was removed, a larger quantity than had at any time previously been observed coming from it passed into the bladder. During ureteral micturition this opening did not advance into the cystoscopic field as does the normal, and it remained open when passive. The relative sizes of the three openings are accurately recorded in Figure 1.

Urine from the left kidney contained 2.6 per cent. urea. Phenolsulphonephthalein appeared from this kidney in three minutes, assuming a deep color in four minutes. Urine collected from the upper right opening contained an occasional short string of streptococci. Urea was 2.5 per cent., and phenolsulphonephthalein appeared in four minutes, assuming a deep color in seven minutes. Urine collected from the lower right opening showed an occasional pus cell, many strings of streptococci, urea only 0.3 per cent., and phenolsulphonephthalein appeared in fifteen minutes in traces only. The quantity of urine secreted was only one-third that collected through each of the other two catheters in the same length of time. Examinations for tubercle bacilli were negative.

Thorium nitrate was injected, and pyelograms were made of the right kidney (Fig. 2). Both kidneys were well up in place. The two pelves of the right kidney were completely separated, and the ureter from the rudimentary cephalic pelvis entered the bladder at the caudal opening. This ureter was the larger. The exact relative position of the two ureters in their course varied, as determined by roentgenograms taken at few minute intervals, the ureter from the lowermost pelvis being more mobile. Just before the ureters entered the bladder they crossed, the ureter leading to the lower-

29. In addition to the references already given, the following will be found of interest:
Hamilton, A.: An Apparatus for the Intermittent Postoperative Drainage of the Bladder, THE JOURNAL A. M. A., 1908, l, 962.
Connel, K.: A Suction Apparatus for Continuous Drainage, Ann. Surg., 1903, xxxvii, 886.
Wacobarn: Rev. méd., Jan. 1, 1899; abstr., THE JOURNAL A. M. A., 1899, xxxii, 432.
Walker, J. B.: Continuous Drainage of Bladder, Ann. Surg., 1899, xxx, 515.
Churchman, J. W.: The Use of Suction in the Postoperative Treatment of Bladder Cases, Bull. Johns Hopkins Hosp., 1916, xxvii, 69.
1. Eisendrath, D. N.: Ann. Surg., 1912, lv, 571.
2. Brewer: Ann. Surg., 1911, liii, 827.
3. Lewis: Med. Rec., New York, Oct. 6, 1906, p. 521.

most, supernumerary bladder opening passing posteriorly, a relation constant in all our roentgenograms.

In this review of our case, we wish to emphasize: (1) The frequency of the supernumerary ureter, (2) the surgical significance the anomaly may assume, and (3) the possibility of its recognition as a factor in the production of a pathologic condition early in the process.

THE FREQUENCY OF URETERAL DUPLICATION

Complete bilateral duplication of the ureters is rare. Levison,[4] in reviewing the subject in 1907, found only nine cases. Braasch[5] has observed only one case. The condition has been reported by Huntington,[6] Pawlow,[7] Wertheim,[8] Lydston,[9] Rumpel,[10] Kelly,[11] and others. A complete study of the anomaly was made by Brown, Englebach and Carmen[12] in reporting their case.

Complete unilateral duplication is more frequent. Motzfeldt[13] found twenty-three double ureters in 4,500 necropsies. Huntington,[14] in 5,000 dissections, is reported as having found only five cases of ureteral doubling. Wertheim,[8] in 500 operations for carcinoma of the uterus, records only six cases of complete unilateral duplication. In the clinical case demanding urologic investigation, the frequency is more marked. Pawlow[7] observed three cases and reports six others. Braasch, in 1912, reported seven cases of unilateral complete division of the ureter, and Weigert[15] saw seven cases in one year.

Huntington concludes from his dissections that the most common ureteral anomaly is a double pelvis and ureter, with the ureters uniting before entering the bladder. Cases of single pelvis with the ureter dividing above its insertion into the bladder have been reported. Ransohoff[16] states that a duplication of half of a ureter is present in 1 per cent. of all subjects.

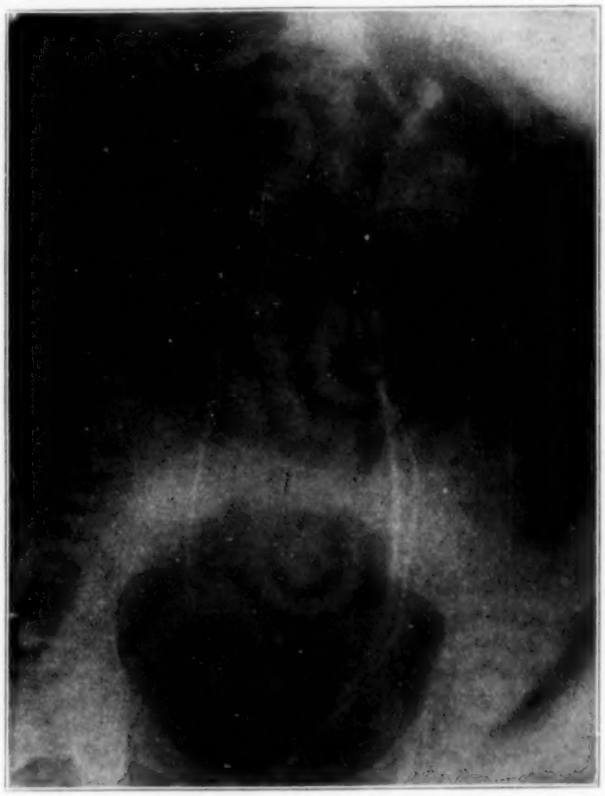


Fig. 2.—Complete duplication of the right ureter and pelvis, as determined by ureteropyelography. A leaded catheter was inserted into the left ureter, and 2 c.c. of thorium nitrate were introduced that we might not fail to locate exactly the position of the left kidney.

THE SURGICAL SIGNIFICANCE OF THE SUPERNUMERARY URETER

Not infrequently ureteral anomalies, the surgical significance of which depends on the predisposition their very presence exerts on the development of hydronephrosis and infection, are associated with prenatal renal formations[17] which persist throughout life, rendering resistance to such changes below normal. The possibility of the existence of this congenital alteration of the kidney lends an added clinical importance to every case of supernumerary ureter. The surgical interest in a supernumerary ureter, however, is very much governed by the location of its meatus. Should the opening be extravesical, its correction is possible only by surgical intervention. When intravesical, its relative position in the bladder will influence its surgical importance. When located in the trigon near the vesical neck, the folds of the mucous membrane act as valves, closing the opening and resulting in hydronephrosis.[18] Should it be near the normal site of the ureteral meatus, this difficulty is not encountered; but if the opening be abnormally small, a condition which usually prevails, stasis is inevitable and infection is prone to occur. If the opening is of normal size and has its normal sphincterlike action, the condition can remain latent throughout life, and if discovered will be of no clinical interest; but when there are no liplike folds about the opening, and it remains open when passive, although of normal size, the condition becomes a potential one for harm. Draper and Braasch[18] assert that this "mechanical action of the valve can be dispensed with" if the "glomerulotubular pressure is maintained at normal."

In our case there was an absence of the sphincterlike action; the meatus did not grasp the introduced catheter as does the normal meatus; the orifice remained open at all times; it was the largest of the three meatuses, and we considered that the glomerulotubular pressure was lessened, as we felt justified in believing that merely sealing the meatus by mucus was sufficient to obstruct the flow of urine completely. The physiologic action[19] of the meatus being absent, and the force of the urinary efflux into the

4. Levison, referred to by White and Martin: Genito-Urinary and Venereal Diseases, Ed. 8, p. 506.
5. Braasch: Ann. Surg., 1912, lvi, 727.
6. Huntington: Harvey Lectures, Series II, 1906-1907, Philadelphia, J. B. Lippincott Co., 1908.
7. Pawlow: Deutsch. Ztschr. f. Chir., 1913, cxxi, 425.
8. Wertheim, quoted by Brown: Am. Jour. Obst., 1915, lxxi, 669.
9. Lydston: A Text-Book on Genito-Urinary, Venereal and Sexual Diseases, Philadelphia, F. A. Davis Co., 1900, p. 843.
10. Rumpel: Cystoscopy as Adjuvant in Surgery, New York, Rebman Co., 1910, p. 7.
11. Kelly and Burnam: Diseases of the Kidneys, Ureters and Bladder, New York, D. Appleton & Co., 1914, ii, 329.
12. Brown, Englebach and Carmen: Tr. South. Surg. and Gynec., Assn., 1909, xxii, 248.
13. Motzfeldt: Norsk Mag. f. Lægevidensk., July, 1914.
14. Huntington, quoted by Furniss: Am. Jour. Obst., 1915, lxxi, 669.
15. Weigert, quoted by von Bergman and Bull: System of Practical Surgery, Philadelphia, Lea Bros. & Co., 1904, v, 225.
16. Ransohoff: Keen's Surgery, Philadelphia, W. B. Saunders, 1909, iv, 203.
17. Losee: Am. Jour. Obst., 1915, lxxi, 672.
18. Draper, J. W., and Braasch, W. F.: The Function of the Ureterovesical Valve, THE JOURNAL A. M. A., Jan. 4, 1913, p. 20.
19. Kretschmer and Greer: Surg., Gynec. and Obst., 1915, xxi, 228. Pasteau, O.: Jour. d. 'urol., July 15, 1914; abstr., THE JOURNAL A. M. A., Aug. 29, 1914, p. 810. Eisendrath, D. N., and Kahn, J. V.: Rôle of the Lymphatics in Ascending Renal Infection, THE JOURNAL A. M. A., Feb. 19, 1916, p. 561.

bladder being below normal, conditions were ideal for regurgitation and infection from below, should such be possible.

As indicated, there was a wide variation in the character of the urine from the two ureters of the right kidney.

Certain writers[7] have suggested the possibility of the development of a constriction of one ureter at the point at which the two ureters cross, thus producing stasis, it usually being the ureter draining the cephalic pelvis most affected. In our case, because of the freely movable condition of the one ureter, such a complication would seem improbable.

In a partial duplication of a ureter, the narrowing of the canal at its point of division, and the change in its projection thus produced, will often lend the condition a surgical importance.

THE DETECTION OF THE SUPERNUMERARY URETER PRODUCING SYMPTOMS

The clinical history of a constant incontinence associated with periods of normal urination at once suggests the existence of a supernumerary ureter with an extravesical opening. It may be extremely difficult to locate the orifice of a supernumerary aberrant ureter. Furniss[20] and Kelly[11] have exhaustively reviewed the various locations of these meatuses and the difficulties encountered in their detection. When the opening is intravesical, this symptom does not obtain, and the determination that an existing renal stasis or infection is associated with a ureteral anomaly, by the symptomatology alone, is impossible.

Many such anomalies will at once be recognized by cystoscopy, and there is always some irregularity in the bladder picture. But should the opening of the third ureter be among the folds of the trigon or vesical neck, chromo-ureteroscopy may be necessary. Mucus covering the opening, as in our case, may prove confusing, and add to the difficulties in a diagnosis. Should a ureteral division exist above its vesical opening, the anomaly cannot be diagnosed by cystoscopy alone. Pawlow records a case of complete duplication of the ureter until the bladder wall was reached when the two ureters joined, having a common bladder opening. It is by the combined use of the cystoscope and Roentgen ray that such cases may be detected. In every cystoscopically diagnosable ureteral anomaly, the course of the ureters should be determined, by means of the roentgenogram with leaded ureteral catheters inserted; but in cases such as Pawlow[7] and Young[21] report, this may be insufficient and misleading, when pyelography will be necessary. Any anatomic or physiologic alteration in the pelvis can thus be determined also. That the case of partial ureteral duplication may be identified, the ureteral catheter should be introduced just within the meatus, and the thorium allowed to flow into the ureter. Findings at dissection would indicate that many cases of partial duplication are being overlooked by the clinician. The Roentgen ray alone, because of the enlarged kidney shadow, may suggest the anomaly, yet an accurate diagnosis cannot thus be made.[22] The functional and bacteriologic tests, possible with the separate collection of urine through the catheter, have the same diagnostic value as in other urologic cases.

20. Furniss: Surg., Gynec. and Obst., 1914, xviii, 584.
21. Young, quoted by Kelly and Burnam (Footnote 11).
22. Brown: Boston Med. and Surg. Jour., 1914, clxxi, 373.

It is most often the ureter draining the cephalic pelvis which has the abnormally placed opening, which is usually lower and nearer the midline, conforming to Weigert's rule. Braasch[5] reports by illustration two cases with the ureter draining the cephalic pelvis entering the bladder at the cephalic vesical orifice.

With the examination of a case as thus outlined, it is possible to recognize clinically every case of ureteral anomaly, and determine its surgical importance before a terminal pathology is encountered.

With all available data in our case, any explanation of the attack of abdominal pain in 1914 must be purely speculative. We had a complete duplication of the right ureter, with separation of the two pelves, the cephalic one being rudimentary. There was evidence of infection of this supernumerary pelvis, and the function of this portion of the kidney was poor. With the progress of pregnancy, postural treatments and the employment of urinary antiseptics, the bladder symptoms disappeared. The dull ache remained over the right lumbar region, and cystoscopy demonstrated, Dec. 20, 1915, the third opening still inflamed, with an existing edema of the subjacent mucosa. The remainder of the bladder was normal.

There was no special diagnostic significance in the presence of the papilloma.

CONCLUSIONS

1. Supernumerary ureters are more common than generally appreciated by the clinician.
2. They may be productive of a pathologic condition demanding surgical correction.
3. An otherwise benign condition may be rendered malignant through the association with a supernumerary ureter.
4. Their recognition is possible in every case.
5. In our case, the unilateral duplication had a direct bearing on the progress of the pathologic process.

THE TREATMENT OF GONORRHEAL FOLLICULITIS BY CAUTERIZATION WITH THE D'ARSONVAL CURRENT

EDGAR G. BALLENGER, M.D.
Fellow of the American College of Surgeons
AND
OMAR F. ELDER, M.D.
ATLANTA, GA.

In July, 1915, Swinburne[1] directed attention to fulguration in the treatment of gonorrheal folliculitis. Since October, 1915, we have employed the method suggested by him and desire to record the unusually satisfactory results obtained by this treatment in recurrent and chronic gonorrhea.

For many years we have understood the part played by the glands of Littré and the crypts of Morgagni in harboring the gonococci where medication could not reach them. Knowing this, however, heretofore has been of small importance because there was no definite, dependable remedy to eradicate the organisms or destroy their foci. To Swinburne belongs the credit for evolving a method for the destruction of these protected recesses. This can be readily and certainly done by inserting an electrode into the follicle

1. Swinburne: Med. Rec., New York, July 31, 1915.

and applying the d'Arsonval bipolar current; this is much more satisfactory to deal with than the Oudin monopolar current. Within from two to ten seconds the follicle and tissue immediately around it have become white, and in about one to three weeks it sloughs away, leaving only a smooth granulating surface which finally becomes covered with epithelium and the follicle no longer exists. The patient's immunity, which was able to eradicate the organisms except in protected recesses, now completes the cure if all the recesses have been destroyed and the adnexa are not infected.

SELECTION OF PATIENTS

Naturally acute or subacute conditions should not be treated in this manner. There are many patients who remain free from discharge while under ordinary treatment, but who have a relapse when the injections and irrigations are discontinued, or after dissipation or coitus. If the prostate and seminal vesicles are eliminated as possible foci, the chances are about twenty to one that infected follicles keep up the inflammation. This is at times strikingly shown by the disappearance or great reduction in the discharge or shreds within one or two days after the cauterization of inflamed pockets. If the persistent discharge and shreds were not caused by these foci of infection, their disappearance after cauterization of the follicles could hardly have been expected to occur. Of course

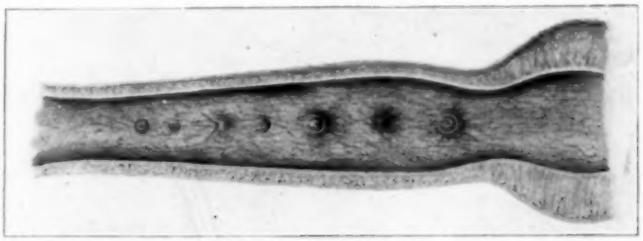


Fig. 1.—Diagrammatic drawing of a segment of the roof of the urethra, showing glands of Littré and crypts of Morgagni.

such a prompt improvement many times does not result, though when it does it proves our contention. At times, especially in subacute recurrences, with immunity lowered, the discharge may be made worse by endoscopy and high frequency. Irrigations and injections of mild remedies may be continued, however, just as if the high frequency treatment had not been administered. This will soon control the recurrence if it should develop.

When all the foci have been destroyed, a continuation of mild remedies will then effect a cure without further relapses. It does not seem difficult for Nature to secure immunity to gonococci on a smooth urethral mucosa. Infected follicles provide conditions which are unfavorable for the immunizing processes, especially in chronic infections. This probably accounts for the uncertain results in the treatment of gonorrhea and for the lack of uniformity with vaccine therapy. The average patient is largely immune to gonococci except on mucous and serous surfaces, and even here local immunity can be developed with a fair degree of ease if protected recesses are absent or can be destroyed. In terms of modern warfare, we may say that the organisms may be destroyed without much difficulty by Nature's medical artillery if the infection is not protected in the trenches. The high frequency current is the gonococcal trench destroyer. This becomes readily apparent when an endoscopic examination is made a few weeks after follicles have been cauterized, and at their former sites we find only smooth mucosa. Heretofore chronic and recurrent gonorrhea, even in the hands of experts, did not receive treatment that could be depended on to afford definite results in a very encouraging percentage of cases. We knew the advantage of massage of the prostate, and realized the persistent character of seminal vesiculitis; but many patients who did not have such complications were not infrequently refractory to treatment because of infected follicles. Since Swinburne has suggested to us an effective means of destroying these foci, this former bugbear of medicine can be placed on an accurate scientific basis which will

Fig. 2.—Ordinary fulgurating electrode, showing only a small amount of exposed wire beyond the insulation.

afford results as certain as our judgment is accurate in selecting appropriate cases and directly in proportion to the skill we exercise in detecting and destroying all of the protected recesses. As previously stated, we should not expect this treatment to cure prostatitis and seminal vesiculitis.

Fulguration is of particular value in chronic folliculitis in which there is a beaded condition of the urethral canal, although more frequently recurrent infections result from infected follicles which have not sufficient infiltration to render them palpable.

INSTRUMENTS

The most satisfactory urethroscope both for diagnosis and cauterization is McCarthy's improved cystourethroscope. This permits an easy examination and provides a constant flow of cool sterile water. The electrode should be one which may be inserted into the bottom of the follicle and thus cauterize the entire tract. The insulating sheath should extend only beyond the lever for controlling the distal point of the electrode. This kind of an electrode may be made by inserting a silver wire, of about 22 gage, through a urethral catheter. A small bulb may be made on the end of the silver wire by holding it in a Bunsen flame until it melts. Such a bulb on the end of the electrode facilitates its introduction into the depths of the folli-

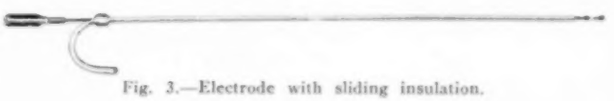


Fig. 3.—Electrode with sliding insulation.

cle. Some of the early failures were due to the fact that the electrodes used were placed only over the openings of the follicles and not inserted into their depths, as they should have been; for on subsequent examinations the follicles were still present.

By moving the silver wire up and down through the insulating sheath, the desired amount of exposed electrode may be obtained. The amount of exposure needed, of course, varies with the depth of the follicles to be cauterized. The sheath should be wrapped with adhesive plaster around its proximal end so as to form a bulbous mass to prevent its passing too far into the urethroscope when the wire is advanced. The illustrations show several types of electrodes we have made

with silver wire and small rubber tubing. A small rubber cap is placed over the electrode to prevent the irrigating solution from spraying on the surgeon's face. A rubber band rather tightly applied around the penis just back of the corona will cause good dilation of the urethra without unnecessary wastage of irrigating solution. Each follicle is cauterized until it becomes distinctly white.

REPETITION OF CAUTERIZATION

The treatment with the high frequency current may be repeated in from two to three weeks, as indicated by the reactions and by persisting manifestations of infected follicles. Inflammation of the prostate and seminal vesicles should receive appropriate treatment during this time.

Fig. 4.—Electrode with sliding insulation and small rubber shield to prevent the squirting of irrigating solution into the examiner's eye.

The following case histories have been selected from fifty-four patients treated with the high frequency current for persisting or recurrent urethritis. Some had been treated for as long as six years by a number of physicians and specialists, but the discharge and urethral shreds still continued. Two or three treatments were the average required after we learned the importance of inserting the electrode to the bottom of the pocket and to apply the current until the mucosa overlying it turned white. A number of the patients returned to their homes and allowed their physicians to continue mild irrigations. During the two or three weeks' interval it was most gratifying to note the marked improvement in some of these patients who had for years been unsuccessfully treated by the usual measures. Without burdening the reader with the details of many of the histories, we should like merely to say that, in suitable cases, we have never been able to secure such definite and prompt results by any measure or remedy hitherto advised for this class of patients.

REPORTS OF CASES

CASE 1.—Mr. A., with gonorrhea of four months' duration, thought himself cured, and married without examination to determine the absence of gonococci. Recurrence developed on the wedding trip before he indulged in coitus with his wife, and he reported for treatment two days later with a slight purulent discharge with many typical intracellular diplococci. An examination was made with McCarthy's cysto-urethroscope, and two inflamed glands of Littré were found on the roof of the urethra about 1 inch back of the meatus. These were fulgurated until they became white. The discharge did not recur after this treatment. The urine has since remained clear in spite of alcoholic and sexual excesses.

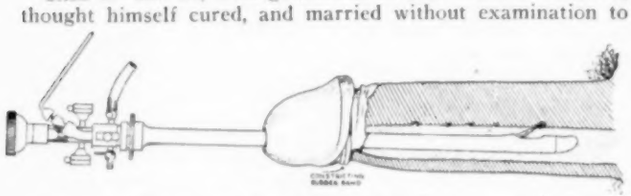


Fig. 5.—Sagittal section of penis with McCarthy's water dilating cysto-urethroscope in position, with electrode inserted into a gland of Littré ready for fulguration.

CASE 2.—Mr. B., with gonorrhea of four months' duration, thought himself cured three times, but on discontinuation of treatment the discharge would recur. Fulguration of six glands of Littré and one lacuna of morgagni in the roof of the urethra caused an increase in the discharge and shreds in the urine for four days. Mild irrigations of potassium permanganate soon cleared the urine of pus and shreds. There has been no further recurrence.

CASE 3.—Mr. C. had had gonorrhea three years ago, but a discharge had been seen more or less constantly in the mornings during this time, and the urine always showed mucous and pus shreds, though no gonococci could be found in the discharge. The prostate and seminal vesicles were normal. Endoscopy showed five distinctly inflamed glands of Littré. These were cauterized with the high frequency current, but the discharge continued though in a smaller quantity for three weeks, when another fulguration treatment was given to two follicles which had been incompletely destroyed. Within two weeks the discharge ceased, the urine became clear, and no further relapse has occurred.

CASE 4.—Mr. D. had gonorrhea six years ago, and had never been free from discharge since. Eight beadlike masses varying in size from a shot to a bean could be palpated along the urethra. These were treated by fulguration; there was a prompt reduction in the size of the lumps, though the discharge continued. In eighteen days another treatment was given with the high frequency current, and five inflamed indurated follicles were cauterized. While the condition was improved, there could still be felt two nodules at the end of three weeks when these were deeply cauterized. The urine is now nearly clear, and the morning discharge no longer appears.

805 Healey Building.

THE DURATION OF THE NURSING PERIOD IN WOMEN OF THE UNITED STATES

A. GRAEME MITCHELL, M.D.
Clinical Assistant, Children's Hospital, Philadelphia

PHILADELPHIA

It is of interest to know the present average length of breast feeding and to determine any change which has occurred in recent years.

Such a study is more readily undertaken because of the paucity of statistics on the subject in this country, and because of the difference of opinion which prevails regarding the increase or the decline of nursing ability in American women. This difference of opinion is well illustrated by comparison of the statements of two eminent authorities. Holt[1] says: "In spite of all effort to the contrary, it is nevertheless a fact that the capacity for maternal nursing is steadily diminishing in this country." On the other hand, Griffith[2] says: "The ability to nurse is no longer materially diminishing, provided the woman has been raised and continues under healthy normal conditions. These conditions are improving in the upper classes and are not changing for the worse in the poorer." Dr. Griffith's statement applies, not only to this country, but to civilized nations in general.

It is needless to call attention to the vast importance of such a subject. One realizes the great advantage of maternal over artificial feeding, but it is brought home very forcibly by statistics, such as those of Davis,[3] which show that above the age of two weeks the proportion of deaths in bottle-fed babies is six times that of breast-fed babies.

1. Holt, L. E.: Infancy and Childhood, D. Appleton & Co., New York and London, Ed. 4, 1908, p. 168.
2. Griffith, J. P. C.: The Ability of Mothers to Nurse Their Children, THE JOURNAL A. M. A., Nov. 23, 1912, p. 1874.
3. Davis, W. H.: Am. Jour. Pub. Health, 1912, ii, 67.

Our task in this matter is clear. Many times breast feeding is unnecessarily stopped. Most authors agree that in such instances the ignorance of the laity plays an important rôle, but that this is perhaps secondary to the lack of perseverence of the physician. Martin,[4] working in the Midwife School of Stuttgart, found that from 1884 to 1903, of 10,000 mothers, 88.2 per cent. nursed, 10.5 per cent. partly nursed, and 1.3 per cent. did not nurse at all. Later they were able to make all the mothers nurse. Thorn,[5] quoting Oppenheimer of Munich, says: "Of 1,000 mothers, 642 did not nurse, of whom only 31 had valid reason for not performing their maternal duty." Thorn believes that with encouragement, care and proper feeding, 90 per cent. of all mothers are able to nurse.

In our own studies it will be seen that about 20 per cent. of American mothers of a certain class never suckle their offspring. One cannot resist the temptation here to plead for a lessening of this number. Education of the laity to the advantage of breast feeding and the danger of bottle feeding; proper care of the breast during and after pregnancy; and regulation of the mother's health, habits and diet should help us to encourage and prolong lactation.

Many of the German statistics are taken from maternity hospitals. Absolutely accurate statistics are available practically only in such institutions, but patients are discharged from them usually at the expiration of ten days or two weeks. The problem obviously does not lie here, although it is important to remember that the foundation for successful breast feeding is often determined in this interval. It is at this time that the obstetrician might work in conjunction with the pediatrist with profit, and perhaps with some reduction in infant mortality.

Pistor[6] in 1894 collected 12,809 cases from the midwife tables in Freiburg, in 24 per cent. of which the mothers did not suckle at all. Wiedow[6] in 1895 recorded that of 525 women from the Frauenklinik at Freiburg, only one half could suckle after the first two weeks. Keller[7] found that about 30 per cent. of children were exclusively artificially fed. In Hohlfeld's[8] statistics on 5,023 nursing women, 27.5 per cent. continued to nurse over six months, and Weiss[9] in his studies on 1,622 cases reported that 25 per cent. nursed longer than this period. Bluhm,[10] from a review of German literature, concluded that a third of German women nursed sufficiently, somewhat more than a third were physically unable to nurse, and less than a third nursed insufficiently or not at all, from deficiency of intelligence and desire, or because of social conditions.

In England, Blacker[11] found that of 1,000 cases taken from the poor, only 2.4 per cent. never suckled; while 74.7 per cent. suckled their children seven months or longer. Fordyce,[12] in 374 deliveries of 100 mothers, stated that 69 per cent. of the babies were nursed on the breast wholly or partly for at least two months, the average being ten months; and that the average period of lactation was as long in later as in earlier infants.

In this country some of the statistics are of interest. Dr. Eleanor Jones[13] quotes the studies of Schwartz of 1,500 women, of whom 96 per cent. nursed one month or less, 88 per cent. three months and 77 per cent. six months. The result of a questionnaire sent by Sedgewick to married physicians in the United States is also mentioned. It reveals that 80 per cent. of wives of American physicians succeed in nursing one or more children three months or longer.

Koplik[14] found of 1,007 infants, seen in private practice, 56 per cent. were breast-fed, and of these, only 40 per cent. longer than four months. According to Snyder,[15] a study of 1,000 mothers is contained in a recent pediatric work. Five hundred were poor and living in tenements, and 90 per cent. of these mothers nursed nine months. The other 500 mothers were prosperous and lived in healthy surroundings, but only 17 per cent. nursed nine months.

The value of statistics such as these depends on the number of cases, the memory and intelligence of the mother or person giving the history, and the accuracy with which the history is taken.

It is the object of this communication to present an analysis of almost 3,000 cases taken from the records of the Children's Hospital during the last fifteen years. As it was the desire to determine as far as possible the ability of the mother to nurse, many cases were excluded. It was the duration of the physiologic period of lactation, apart from disease or deliberate act of the mother, which was the problem to be solved. Thus, when the records showed that the mother stopped nursing from some such cause as going to work; or lactation was terminated by an acute infection, or mammary abscess, the case was not included.

It may certainly be stated, however, that the statistics to be presented show with reasonable accuracy the length of breast feeding in the hospital class of Philadelphia women. These women are of different nationalities, including Italian, German, Russian, Irish, Armenian and others. Many of them are native-born Americans, and a fairly large percentage consist of Jewish and colored women. They therefore should represent the same classes which are found in most of the large American cities, at least along the eastern seaboard.

It must also be remembered that many babies admitted to the hospital in the summer are suffering from gastro-enteritis or gastric and intestinal disturbance of some type. It is not to be denied that this condition is much more frequent in bottle-fed babies, and that the bottle-fed baby is more liable to acute infections and illness of any nature than the breast-fed baby. Reasoning from this, we must come to the conclusion that the average length of breast feeding in babies admitted to the hospital is less than for babies of the same class not admitted to the hospital. This statement is made advisedly. Consultation with social workers in Philadelphia shows that they seldom encounter mothers who never nurse their children.

One must understand that in getting a history of breast feeding the baby has not necessarily been wholly breast fed during the entire period stated, but has been receiving most of its nourishment in this way.

From the beginning of 1900 to the end of 1904 there were 734 cases in which the average length of lactation

4. Martin, G.: Arch. f. Gynäk., 1904-1905, lxxiv, 513.
5. Thorn: München. med. Wchnschr., 1907, liv, 513.
6. Pistor and Wiedow, quoted by Blacker, G. F.: Med. Chron., 1900, Series 3, ii, 323.
7. Keller, quoted by Thorn: München. med. Wchnschr., 1907, liv, 513.
8. Hohlfeld, M.: Deutsch. med. Wchnschr., 1905, xxxi, 1391.
9. Weiss, quoted by Griffith: Med. Klin., 1911, vii, 644.
10. Bluhm, A.: Ztschr. f. soziale Med., Berlin, 1907-1908, iii, 72, 161, 261.
11. Blacker, G. F.: Med. Chron., 1900, Series 3, ii, 323.
12. Fordyce, A. D.: Lancet, London, 1906, i, 221.
13. Jones, E.: Arch. Pediat., 1914, xxxi, 24.
14. Koplik, quoted by Griffith, J. P. C. (Footnote 2).
15. Snyder, J. R.: The Breast Milk Problem, THE JOURNAL A. M. A., Oct. 10, 1908, p. 1212.

was 5.92 months. From the beginning of 1905 to the end of 1909 there were 827 cases with an average of 6.36 months. From the beginning of 1910 to the end of 1914 there were 1,258 cases with an average of 5.76 months. Therefore, of a total of 2,819 cases during the fifteen years, the average length of lactation was 6 months.[16]

Table 1 shows a study of the statements of 2,819 mothers when questioned regarding the length of time their children were breast fed. It is seen that there

TABLE 1.—PERIOD OF BREAST FEEDING IN THE CASE OF 2,819 MOTHERS, EXTENDING OVER A PERIOD OF FIFTEEN YEARS

Period of Breast Feeding, in Months	1900 to 1904 Per Cent.	1905 to 1909 Per Cent.	1910 to 1914 Per Cent.	1900 to 1914 Per Cent.
Not breast fed	21.117	18.256	19.713	19.695
1 wk. to 1 mo.	14.033	14.749	16.136	14.972
1 to 2	9.537	10.035	11.923	10.498
2 to 3	6.948	7.858	5.882	6.896
3 to 4	3.267	2.780	3.338	3.128
4 to 5	2.997	3.022	2.305	2.775
5 to 6	4.632	3.868	2.940	3.813
6 to 7	1.634	1.934	2.146	1.905
7 to 8	2.725	2.539	2.146	2.470
8 to 9	3.133	2.781	2.305	2.739
9 to 10	2.129	1.692	1.669	1.841
10 to 11	1.362	3.022	1.510	1.965
11 to 12	7.084	8.342	8.982	8.136
12 to 13	1.908	2.901	1.826	2.212
13 to 14	1.908	4.473	2.225	2.865
14 to 15	3.267	2.418	2.146	2.610
15 to 16	1.498	1.088	1.510	1.365
16 to 17	0.954	0.605	1.258	0.939
17 to 18	5.177	4.715	5.087	4.993
18 to 19	0.545	0.249	0.556	0.450
19 to 20	0.817	0.249	0.715	0.593
20 to 21	0.545	0.121	0.476	0.381
21 to 22	0.408	0.121	0.318	0.282
22 to 23	0.136	0.121	0.159	0.138
23 to 24	1.908	1.572	2.702	2.061
Over 24 mo.	0.272	0.487	0.397	0.385

has been no appreciable decline in the length of maternal nursing in the last fifteen years. The rather higher percentage of cases at from 11 to 12 months, from 17 to 18 months and from 23 to 24 months is caused by the fact that here the mothers' statements that "baby nursed a year," "baby nursed a year and a half," and "baby nursed two years," are included.

It will be perhaps more clearly shown, especially in comparison with other statistics, if the fifteen years' average is put in a different way. These averages are shown in Table 2.

TABLE 2.—PERIOD OF NURSING IN THE CASE OF 2,819 MOTHERS, SHOWN IN AVERAGE PERCENTAGES, COVERING A PERIOD OF FIFTEEN YEARS

Average Percentage	Period of Nursing, Months	Average Percentage	Period of Nursing, Months
19.69	Did not nurse	19.23	13 or longer
80.31	1* or longer	17.02	14 or longer
65.34	2 or longer	14.16	15 or longer
54.85	3 or longer	11.55	16 or longer
47.96	4 or longer	10.19	17 or longer
44.84	5 or longer	9.36	18 or longer
42.07	6 or longer	4.27	19 or longer
38.26	7 or longer	3.82	20 or longer
36.36	8 or longer	3.23	21 or longer
33.89	9 or longer	2.85	22 or longer
31.16	10 or longer	2.57	23 or longer
29.32	11 or longer	2.44	24 or longer
27.36	12 or longer	.38	Nursed over 24

* One week.

If it is borne in mind that we are studying the statements of the poorer class of city women, we may be justified in drawing the following conclusions:

1. There has been no decline in breast feeding in the last fifteen years.

2. The women of the poorer class compare favorably in the period of lactation with the women of the more prosperous class in this country.

3. The women of this country compare favorably in the period of lactation with European women.

4. The average period of lactation in children entered at the hospital was six months.

5. Twenty per cent. of the women did not nurse their children; 80 per cent. nursed one week or longer; 55 per cent. nursed three months or longer; 42 per cent. nursed six months or longer; 34 per cent. nursed nine months or longer; 27 per cent. nursed a year or longer, 9 per cent nursed eighteen months or longer, and 2 per cent. nursed two years.

6. For the reason previously pointed out, namely, the greater susceptibility of artificially fed babies to gastro-intestinal and nutritional disturbance, the infants brought to the hospital were, in the large majority of cases, bottle fed at the time of their entrance there. The conclusion is inevitable that the figures given represent the minimum of lactation.

1805 Pine Street.

16. In presenting these statistics, I realize they are open to criticism because they include the extremes. The average includes all cases.

THE ETIOLOGY OF TYPHUS FEVER IN MEXICO (TABARDILLO)

PRELIMINARY COMMUNICATION *

PETER K. OLITSKY, M.D.,
BERNARD S. DENZER, M.D.
AND
CARLOS E. HUSK, M.D.
NEW YORK

The work covered by this report was begun in February, 1916, in Matehuala, Mexico, and was interrupted in the early part of March because of the necessity of Americans leaving that country. Studies were made of the blood of typhus fever patients to determine whether an organism could be recovered, and, if so, whether it conformed with the organism described by Plotz, Olitsky and Baehr[1] in the blood of endemic typhus fever patients in New York and in cases of typhus fever in Serbian immigrants quarantined in New York harbor. The blood of the patients when injected into guinea-pigs gave the characteristic typhus reaction. The first three blood cultures were made in a medium containing 0.5 per cent. glucose, and an organism was recovered in one case. Cultures were made in twenty-eight cases with a 2 per cent. glucose medium, which is the sugar concentration used in the earlier work in New York. Of the latter cultures only eight could be observed a sufficiently long time, and in all of them the same organism was found.

The organism is an obligate anaerobic gram-positive bacillus which in morphology and cultural characteristics, including acid production in various carbohydrates, is identical with the *Bacillus typhi-exanthematici*. The injection into a guinea-pig of a colony taken directly from the blood culture tube proved the organism to be pathogenic. Agglutination tests performed with serums taken in different stages of the disease showed negative results during the early part

* From the Pathological Laboratory, Mount Sinai Hospital.

* March 20, 1916, shortly after the departure from Mexico, Dr. Husk succumbed to an attack of typhus fever contracted in the prosecution of this work.

* This work was carried out with the aid of a donation made by a number of the directors of the Mount Sinai Hospital and the George Blumenthal, Jr., Fellowship in Pathology. We wish to express our indebtedness to the officials of the American Smelting and Refining Company, whose cooperation enabled us to undertake the work.

1. Plotz, Olitsky and Baehr: Jour. Infect. Dis., 1915, xvii, 1.

of the illness, an occasional positive reaction at or near the crisis, and uniformly positive results after the crisis.

In cultures made from lice taken from the clothing of typhus fever patients, the same organism was obtained. The injection of lice into guinea-pigs produced a febrile reaction, and at necropsy the characteristic splenic lesion was found. In cultures from the spleen, an organism was recovered showing the morphologic characteristics of the *Bacillus typhi-exanthematici*, but on account of the sudden termination of the work, the organism could not be further studied.

ELECTIVE LOCALIZATION IN THE BRONCHIAL MUSCULATURE OF STREPTOCOCCI

FROM THE SPUTUM OF CASES OF BRONCHIAL ASTHMA: PRELIMINARY REPORT

SVERRE OFTEDAL, M.D.
FARGO, N. D.

According to the work of recent investigators and observations of clinicians, it has become evident that the phenomena observed in an attack of bronchial asthma are fundamentally due to a tonic spasm of the bronchial musculature. Just what is the cause of the spasm is still a matter of conjecture. Recently Koessler[1] has reported the finding of a fusiform anaerobic bacillus in the sputum of asthmatic patients which he regards as possibly specific, the evidence being mainly its presence in a large number of cases. He also reports the success of vaccine treatment, which has been especially marked in the cases in which this organism was present in the sputum. The sputum in these cases has, however, contained certain other organisms, notably the pneumococcus, *Streptococcus hemolyticus* and *Streptococcus viridans*. As further evidence of the bacterial origin of the disease is the presence in a large percentage of the cases of associated lesions, particularly of the nasal passages, which strongly suggests a primary focus of infection. The removal of such a focus has often caused a marked improvement in the condition of the patient.

The foregoing evidence suggested to me the possibility of the reproduction of the disease in lower animals by the intravenous injection of cultures of the sputum of asthmatic patients. The reproduction of Rosenow has shown repeatedly, and in a great variety of pathologic conditions, that bacteria (streptococci) display an elective affinity for certain tissues. In our work on herpes zoster[2] we have shown that streptococci isolated from the tonsils, the pyorrheal pockets, the spinal fluid and the sputum of cases of herpes zoster have an elective affinity for the posterior root ganglia. The technic employed in these experiments was essentially the same as that used in the experimental work cited above.

The three cases thus studied were selected to represent different types and stages of the disease. In the first case, a man, aged 39, has had asthma of a particularly severe type for seventeen years, and there is also present a marked bronchitis with profuse expectoration. The second patient has asthma of rather short duration (three years), and the lung changes, except during the active stage of the disease, are comparatively slight. The third case is of twelve years' standing, but is of the remittent type, and the sputum was collected during the latent stage. As an illustration of a case history, that of Case 1 is given in more detail:

CASE 1.—H. B., man, aged 39, referred to me in January, had had asthma since he was 22. Prior to that time, since the age of 14, he had coughing spells every night. He had croup during the first year of life; when 11 years of age he was taken to a doctor to be treated for "catarrh in the head." The attacks of asthma came on very suddenly; the patient remembers distinctly the first night when he had an attack. After that he had an attack some time during each twenty-four hours, usually after the evening meal; but the time of attack varied, showing a marked tendency to continue at the same time of the day for periods of two weeks or more. This condition continued for many years. At one time the patient sought relief by change of climate, going to northern Texas, which brought temporary relief; but after one month in that locality he says he was just as bad as ever. The attacks have never seemed to be influenced as regards onset by any external factor, psychic or otherwise. His father's father and two of his father's sisters had asthma; two sisters had had attacks of croup during childhood, and one brother died of tuberculosis at an early age.

At the time the patient came to my office he was suffering from frequent and severe attacks of asthma, and also had a marked bronchitis with profuse expectoration. The temperature ranged between 99 and 101.5. There was no active lesion to be found in the nasal passages, but the inferior and middle turbinates had been removed several years before. Over both lungs were sibilant and sonorous râles, of the vague character commonly present in advanced cases of bronchial asthma. The cardiac and hepatic dulness were almost obliterated by the resonance of the distended lungs. There were no cardiac murmurs, and beyond these chest findings the examination was practically negative. Cultures were made from the carefully washed sputum and a vaccine prepared directly from the ascites-dextrose-broth culture. After the first dose of vaccine the patient had a violent reaction with chills and marked rise of temperature. Since the beginning of the vaccine treatment he says "he has never had an attack of asthma." The bronchitis has persisted, however, although to a less degree, up to the present time.

No attempt was made to isolate any particular type of organism. Great pains were taken, by gargling and repeated washing of the sputum in sterile salt solution, to avoid mouth contamination, cultures being then made in ascites-dextrose-bouillon, and the twenty-four hour culture centrifuged and injected in varying amounts intravenously.

Of the twenty-one animals injected, all except three have shown typical lung lesions. In the three exceptions, the animals injected with the same strain from a twenty-four hour culture of lung tissue died a few hours later with an overwhelming septicemia. All of the other animals lived until chloroformed, which time varied from forty-eight hours to two weeks after injection. After the first twenty-four hours after injection most of the animals seemed to feel fairly well and would take nourishment. A distinct difference was invariably observed, however, in the manner of breathing, the respirations being markedly reduced in rate as compared with control animals, and intensely labored. Squeaking râles could be heard with the stethoscope, and in one of the rabbits there was an audible wheezing during expiration. Several of the animals would at times hold the head high in the air as if suffering from

1. Koessler, K. K., and Moody, A. M.: Etiology of Chronic Bronchitis, with Special Consideration of Those Forms Associated with Bronchial Asthma, abstr., THE JOURNAL A. M. A., March 27, 1915, p. 1104.
2. Rosenow, E. C., and Oftedal, Sverre: The Etiology and Experimental Production of Herpes Zoster, Jour. Infect. Dis., 1916, xviii, 477.

air hunger. At necropsy the lungs were found to be greatly distended, filling the chest cavity. They were in most of the animals of a dull grayish color, at times mottled brownish plaques. In some, however, in which large doses had been injected, the lungs were distinctly hemorrhagic and showed considerable infiltration, mingled with the emphysematous areas, in microscopic section. The grayish looking lungs were extremely light in weight, the smallest particles floating in water. Pressure elicited distinct crepitation, and all other signs of emphysema were present. On microscopic examination the main changes in these lungs were found to be: A marked distention of the alveoli, and a thinning and often rupture of the alveolar walls. The blood vessels were engorged and there was considerable perivascular round cell infiltration. A very marked change was seen in the bronchioles. These were contracted as if in spasm, and the mucosa was thrown into folds which almost completely obliterated the lumen. In the peribronchial tissue there were small areas of hemorrhage and marked round cell infiltration. In the substance of the musculature a considerable number of streptococci were found, usually lying between the muscle fibers and toward the inner margin of the muscle wall. In this connection may be mentioned an interesting observation in the animals injected from the sputum in Case 3. Here the sputum culture was largely composed of a short, plump, polar-staining bacillus, and very few streptococci were present. But tissue cultures of the lungs made forty-eight hours after injection showed a pure culture of streptococci, while stains of the lung tissue showed streptococci present in the musculature, just as in the animals injected with cultures from Cases 1 and 2, in which almost pure cultures of streptococci were present.

Cultures were made of the blood and other body fluids, and also of several of the other organs besides the lungs in order to disprove the possibility of a generalized bacteremia. In nearly every case the blood and all organs except the lungs were found to be sterile, while the lungs yielded a pure culture of streptococcus. One rabbit was kept for two weeks, being injected every two days with twenty-four hour cultures from the sputum in Case 1. Here the lungs were found to be markedly emphysematous, while some areas, especially around the larger vessels and bronchi, showed a marked tendency to atelectatic compression. Cultures from the lung tissue showed *Streptococcus viridans*.

As regards the morphology of the organisms, both the hemolyzing and green-producing streptococci were found, while in one case a pure culture of *Streptococcus mucosus* was obtained from the lung tissue.

The amount of hemorrhagic infiltration associated with the emphysema in these cases seemed to depend largely on the dosage of the organisms injected. Thus it was found that by injecting the growth from 1 ounce of a twenty-four hour culture of the sputum in Case 1 the typical and almost uncomplicated condition of emphysema could be produced repeatedly.

From an analysis of these findings, associated with a systematically studied history and examination of a considerable number of cases, it seems evident that the sputum of at least a large number of persons suffering from bronchial asthma contains organisms (streptococci) which have an elective affinity for the bronchial musculature and that the invasion of the lungs by these organisms, when made possible by any factor, psychic or otherwise, which tends to lower the resistance of the individual, will bring about a tonic spasm of the muscles of the bronchioles and cause the typical phenomena so commonly observed clinically in patients suffering with an attack of asthma. In other words, these experiments illustrate another example of elective localization of streptococci. There are no doubt a number of factors which must be taken into consideration. I would particularly emphasize a hereditary predisposition to weakness of the respiratory tract. In nearly all of the cases studied there is a family history of asthma or other respiratory tract disease. Many of the cases give a history of spasmodic laryngitis (catarrhal croup) during childhood, which strongly suggests a congenital lack of resistance, manifesting itself as bronchial asthma later in life with the development of a focal infection, or a weakening disease of the lungs, such as an attack of acute bronchitis.

MERCURIC CYANID POISONING WITH RECOVERY*

A. O. GETTLER, PH.D.
Pathologic Chemist, Bellevue Hospital; Assistant Professor of Chemistry, University and Bellevue Hospital Medical College
AND
WILLIS BAKER, M.D.
Assistant Pathologist, Bellevue Hospital
NEW YORK

Poisoning by mercuric cyanid is a rare occurrence. The case here reported is of interest because of the hopeless prognosis, subsequently followed by complete recovery, and the unusual opportunities at hand for making chemical and physical analyses of blood and excreta for a period of a month and a half.

History.—A German girl, aged 20, attempted suicide on the afternoon of Aug. 1, 1915, by entering the cabinet of the physician by whom she was employed as domestic, and taking therefrom one tablet from a bottle marked "Gift." Subsequently this was proved to be mercuric cyanid in 0.5 gm. (7½ grain) tablets. She was not found until several hours later, and then promptly brought to the hospital by an ambulance.

Clinical Course.—On admission to the hospital she was in a state of partial collapse; she responded well to stimulation, and was lavaged with a copious amount of potassium permanganate (1:1,000 solution), the vomiting and nausea continuing. We are not certain of the immediate action of the poison, as it was quite impossible, on admission, to get from her any description of the early symptoms. On several occasions later she said that as far as she knew, she had suffered no convulsions or loss of consciousness, but remembers only vomiting violently from the very first.

Twenty-four hours after ingestion of the poison, the patient had a general convulsion; vomiting continued and bowels were loose; the urine was "q. s."

On the third day a rash was present over the face and arms; no urine was observed on this day, but may have been voided with the stools, which were very loose and frequent.

On the fourth day the mouth was sore. The patient was salivated. She was drowsy and stupid. Vomiting continued. No urine was passed for twenty-four hours; a catheterized specimen was less than half an ounce.

On the fifth day the breath was fetid, the tongue swollen, the gums ulcerated. The patient was in coma most of the time. There was incontinence of feces. Phenolsulphone-

* From the Department of Pathology, Bellevue and Allied Hospitals, Dr. Charles Norris, director.

phthalein was injected, but no urine was recovered at the end of the first and second hours by catheter.

On the sixth day phlebotomy was done, 15 ounces being withdrawn. On this day the patient passed 2 ounces of urine after fifty hours' complete retention. The vomitus was green. The patient complained of headache.

On the seventh day the patient was menstruating. The bowels were very loose, and there were abdominal pain and tenderness.

From the eighth to the twelfth days the urine increased in quantity daily and was now 15 ounces. Vomiting was persistent.

From the thirteenth to the nineteenth days the vomitus was bloody. The urine amounted to about 24 ounces daily.

On the twenty-third day the vomiting had stopped. The phenolsulphonephthalein test revealed 12 per cent. in two hours.

On the twenty-ninth day the appetite was improving.

On the thirty-first day the patient was out of bed for half an hour. She was given a soft solid diet. She had lost 20 pounds.

On the thirty-eighth day she was about the ward most of the time, and was very cheerful.

On the forty-fifth day she was well, and was discharged to court for trial.

Throughout her stay in the hospital, pulse, respiration and temperature ranged within normal limits, except during the temporary periods of coma, convulsions, etc.

CHEMICAL AND PHYSICAL ANALYSIS OF BLOOD

Day of Disease	Nonprotein Nitrogen*	Urea Nitrogen†	Sugar‡	Refractive Index§	Freezing Point	Remarks
2	40¶	24¶	128¶	17.58	—0.573 C.	Convulsion; no retention
4	292	270	99	14.98	—0.601	Drowsy; retention 24 hrs.
5	288	263	148	14.61	.....	Coma; retention 50 hrs.
10	205	174	69	14.61	—0.609	Urine increasing daily
17	162	123	...	16.84	—0.625	Bloody vomitus
23	195	172	81	18.47	—0.660	Stopped vomiting
31	172	154	74	15.56	—0.772	Improved; patient up ½ hr.
38	65	51	64	16.58	—0.611	About ward; cheerful
45	45	24	76	17.68	—0.579	Discharged

* Method of Folin and Denis (Jour. Biol. Chem., 1912, xi, 527).
† Method of E. K. Marshall (Jour. Biol. Chem., 1913, xv, 487).
‡ Method of Lewis and Benedict (Jour. Biol. Chem., 1915, xx, 61).
§ Zeiss immersion refractometer, $\triangle Nd \times 10^4$.
¶ Milligrams per hundred cubic centimeters of blood.

Urinalysis.—Blood and albumin were present in the urine for the first fifteen days. From then on there was no blood, and albumin was present in decreasing amounts. On the day of discharge only a very faint trace was present.

Treatment.—Gastric lavage was performed on admission and the first day thereafter. The bowels were kept open by small doses of magnesium sulphate given in water at frequent intervals. Hot packs and high hot colon irrigations were administered regularly to aid elimination and as a general tonic. Cerium oxalate, 2½ grains, was given every four hours, but failed to control the vomiting, which persisted, notwithstanding, for twenty-three days. Nutritive enemas (eggs, milk and sugar) were resorted to when the vomiting was particularly severe. The patient was on a milk diet the first thirty days, and fluids were forced in the form of lemonade, cracked ice and water. The stomatitis was relieved by frequent gargling with potassium chlorate solution.

Toxicologic Findings.—The vomitus, stomach washings, urine and feces of the twenty-four hours after admission were analyzed for poison. In the combined lavage and vomitus, both the mercury and the cyanid were easily detected. The urine and the feces showed the presence of mercury, but no cyanid, the latter evidently being destroyed in passing through the organism. Analysis of the feces on the sixth day showed mercury present in traces only. The blood which was removed on this day (450 c.c.) was also analyzed for poison. Before starting on this venture, we knew that if any were present, it must be an extremely minute quantity, and therefore from the beginning the greatest care was applied in its detection. The most delicate method possible was used[1]; the blood was decomposed and brought into solution in the usual way by the use of previously tested mercury free reagents, potassium chlorate and hydrochloric acid. The mercury was then deposited on a thin strip of gold by means of the electric current, carefully washed, dried and placed in a glass tube previously drawn out to a capillary at one end, the hydrogen generator being attached to the other end. After pure hydrogen had been passed through very slowly for half an hour, the tube containing the gold foil was carefully heated, volatizing the mercury, which was then carried along in the slow stream of hydrogen and deposited on the cold drawn out end of the tube. With a strong lens, a few microscopic globules of metallic mercury were visible, which with iodin gave the red iodid of mercury reaction.

The combined feces, urine and vomitus of the sixteenth day were analyzed and found to contain no mercury.

Spectroscopic examination of the blood on the first day revealed no evidence of cyanhemoglobin.

COMMENT

Anuria began on the third day and lasted two days, the patient then being in typical uremic coma and presenting the characteristic picture of severe mercurial nephritis. The prognosis was extremely grave and a fatal termination was to be expected, from experience in poisoning with mercuric chlorid, in which recovery is extremely rare after onset of profound uremic coma and anuria.

Blood Findings.—The nonprotein nitrogen of the blood increased steadily with the urinary retention. The surprisingly high figure of 292 mg. per hundred c.c. of blood (the normal is from 35 to 45) was obtained. Although higher figures have been reported in the blood, this observation is of interest because of the subsequent recovery after so severe a degree of retention. In our previous experience all cases which presented values of 200 mg. or above terminated fatally.

The cryoscopic figures are noteworthy: From the normal average of —0.560 C. the depression of the freezing point was gradual as the blood retention increased. From the tenth day on, when the urinary excretion was increasing daily, the freezing point determinations were found to decrease steadily, the greatest depression being noted twenty-one days thereafter, namely, —0.772 on the thirty-first day. This would appear to us to indicate that the kidneys in resuming their function regained their water excretory power more rapidly than that of the crystalloids, retention of which caused the very low freezing point.

Chemical.—The toxic action of mercuric chlorid on the kidney is due to the positive Hg^{++} ion; while potassium cyanid exerts its extremely rapid lethal properties (acute respiratory death) through its negative CN^- ion. Mercuric cyanid, $Hg(CN)_2$, contains both of these, and *a priori* one would expect it to have the combined effect of the two. However, its toxic action resembles that of the chlorid and not that of the cyanid salt, as indicated by the clinical course of this case, which resembles strongly that of poisoning with mercuric chlorid (with the possibly notable exception of a single convulsion on the second day). This action of mercuric cyanid may be due either to its small degree of ionization, or to the isometric structure, $Hg(NC)_2$, which has been ascribed to it by some authorities.

1. Wolff, C. H.: Repertorium der analytischen chemie, 1883, iii, 114.

NOTES ON GRIP EPIDEMIC IN CHICAGO

A. M. MOODY, M.D.
AND
J. A. CAPPS, M.D.
CHICAGO

The epidemic of grip seems to have spent its force in the months of December and January. Only sporadic cases have occurred since then. It is highly desirable that the records of this epidemic in various communities should be compiled as completely as possible by all those who have given the subject special study. Already valuable reports have come from the New York Department of Health, the Memorial Institute for Infectious Diseases of Chicago, and from the United States Public Health Service. The health departments, however, are handicapped by the fact that grip is not generally reported as a contagious disease. This places the greater responsibility on individual physicians who have had opportunity to observe many cases. In this spirit we desire to publish our data.

The frequency of the disease in private practice is not easy to determine without an extensive house to house canvass. In the absence of any large statistics, we submit the number of cases occurring in four institutions in which written records were kept of the clinical diagnosis.

OCCURRENCE OF CASES

	No. Persons	Grip Cases	Percentage Morbidity
Michael Reese	140	27	19
Illinois Training School for Nurses	275	24	9
Old Men's Home	112	69	61
St. Luke's Hospital Nurse's Training School	150	24	16
Total	677	144	21

Nearly all of the 144 grip patients here referred to were unable to report for duty. There were many others with colds who remained on duty and were not included in the table.

The leukocytes were estimated in fifty-three cases of grip, several counts being made in many of the patients.

Thirty cases had a leukocyte count of 10,000 or less. Many of these showed a leukopenia.

Sixteen cases had a leukocytosis of from 10,000 to 15,000.

Seven cases had a leukocytosis of 15,000 or more.

From these figures it is seen that leukocytosis is usually absent, although temperature of from 1 to 3 degrees above normal was the rule.

In thirty-one cases careful bacteriologic cultures were made on blood agar plates with the following results:

Streptococcus hemolyticus occurred thirty-one times.
Streptococcus viridans and the pneumococcus occurred thirty-one times.
Streptococcus mucosus occurred once.
Hemolytic staphylococci occurred nineteen times.
Influenza bacilli occurred two times.
Friedländer's bacillus occurred two times.
Micrococcus catarrhalis occurred once.

The streptococcus was the most constant organism present, usually accompanied by the pneumococcus.

The influenza bacillus was rarely found, and then only in small number, although in some of the cases cultures were made early in the disease, when they are most likely to be found. It seems to us improbable, therefore, that the influenza bacillus played an important rôle in the epidemic.

St. Luke's Hospital Laboratory—122 South Michigan Ave.

PRESCRIPTION WRITING IN ENGLISH *

BERNARD FANTUS, M.D.
Professor of Pharmacology and Therapeutics, University of Illinois, College of Medicine
CHICAGO

In the report of medical curriculum of the Council on Medical Education of the American Medical Association, the following position is taken by the Subcommittee on Prescription Writing concerning the use of Latin: [1]

> The committee considers Latin desirable for the names of ingredients (inscription); indifferent as to the directions to the dispenser (subscription); and objectionable as to the directions to the patient (signature). The student should, however, know the meaning of the Latin phrases which are commonly used. This amount of Latin may be readily taught in the course, so far as this subject is concerned.

While this report was not acted on by the Council, it may be considered the most recent authoritative statement in this matter. It commits us to the use of Latin in at least a portion of the prescription.

The arguments advanced in favor of Latin prescription writing are as follows:

1. "The Latin names of drugs are more definite, concise and unchangeable."
2. "A Latin prescription can be compounded all over the civilized world."
3. "Latin prescriptions are used internationally in medical literature."
4. "It guards the patient against knowledge that might be prejudicial: (*a*) as to the physician's intention; (*b*) as to greater ease in securing the prescribed drug without a prescription, with possible formation of habit or other detriment."
5. Better form is preserved. "To encourage the use of English official names would easily lead to the use of unofficial English, or common names, which often are indefinite; less pains would be required in mastering the art, and the results would be probably greater laxity in prescribing and less familiarity with the official substances."

Let us analyze these arguments.

1. The first reason advanced cannot stand, as the *English official names for drugs and preparations are just as definite and concise as are the Latin names;* and the latter are no less changeable, as is evidenced by the changes in the official names occurring at pharmacopeial revisions. We must not confuse, in this connection, the English *official* names, which are given in the pharmacopeia alongside of the official Latin names, with the common English names, or synonyms, such as: Paregoric, Hoffmann's anodyne, Epsom salt, golden seal, Indian hemp, etc., which often are given in the pharmacopeia after the official English name.

2. As to the second reason, it may be considered very *doubtful whether it is ever desirable for a patient traveling abroad to have a prescription refilled without medical supervision.* Even when the patient stays at home, indiscriminate refilling of prescriptions is not desirable. When the patient travels, there is added the lack of international uniformity of strength of preparations (excepting in the case of some of the poisonous medicaments) that might lead to undesirable results, if a prescription calling for a U. S. P. preparation were filled with a preparation of another pharmacopeia having the same or similar name, but a different strength.

* From the Pharmacologic Laboratory, University of Illinois, College of Medicine.

1. Report of Subcommittee on Pharmacology, Toxicology and Therapeutics. Section 4 of Report of Committee on Standard Curriculum for Medical Colleges, American Medical Association, p. 7.

That there is a considerable disparity in the strength of preparations of various pharmacopeias may be seen from the few examples given in Tables 1 and 2. That there are not only differences in strength, but even

TABLE 1.—STRENGTHS OF PREPARATIONS IN VARIOUS PHARMACOPEIAS, GIVEN IN PERCENTAGE OF ACTIVE INGREDIENT

	U. S.	German	British	Others
Liquor sodii hydroxidi	5.	15.	20.0	
Oleum phosphoratum			1.0	0.1*
Syrupus ferri iodidi	5.	5.	5.0	0.5‡
Spiritus aetheris nitrosi	4.		1.52 to 2.66	
Fluidextractum nucis vomicae : strychnin	1.0		1.5	
Tinctura lobeliae	10.0		20.0	
Tinctura iodi	7.0	10.0	2.5† 10.0‡	
Unguentum sulphuris	15.0	33.0	10.0	
Vinum colchici	10.0§		20.0¶	
Vinum ipecacuanhae	10.0		5.0	

* Austrian.
‡ French.
† Mitis.
‡ Fortis.
§ Seed.
¶ Corm.

qualitative differences in composition, may be seen from the fact that the compound infusion of senna contains magnesium sulphate in the United States and British pharmacopeias, and potassium and sodium tartrate in the German and various other continental pharmacopeias. There is also a considerable difference in the use of correctives; but, most of all, a decided

TABLE 2.—STRENGTH OF PREPARATIONS EXPRESSED AS AMOUNT OF ACTIVE INGREDIENT PER UNIT DOSAGE FORM

Trochisci santonini	0.01 French 0.03 U. S. 0.06 British
Pulvis effervescens compositus	7.5 German, U. S. and British 10.0 Austrian

difference in strength: the United States preparation representing, for instance, 6 per cent. of senna, while the Austrian preparation represents 12 per cent. Fancy the predicament of a traveler who buys his compound effervescing powders or compound infusion of senna in different countries; he is doomed to either disappointment or discomfort. With troches of san-

TABLE 3.—OFFICIAL LATIN NAMES IN UNITED STATES PHARMACOPEIA AND IN FOREIGN PHARMACOPEIAS

Liquor calcis	Aqua calcariae—German
Kaolinum	Bolus alba—German, Austrian, etc.
Plumbi carbonas	Cerussa—German.
Cinchona	Cortex chinae—German, Austrian, etc.
Oleum morrhuae	Oleum jecoris aselli—German, etc.
Oleoresina aspidii	Extractum filicis liquidum—British
Ergota	Secale cornutum—German
Nux vomica	Semen strychni—German, etc.
Santonica	Flores cinae—German, etc.
Cambogia	Gutti—German, etc.
Hexamethylenamina	Hexamina—British
Hydrargyri chloridum mite	Hydrargyrum chloratum—German
Hydrargyrum ammoniatum	Hydrargyrum praecipitatum album—German
Aqua hydrogenii dioxidi	Hydrogenium peroxydatum solutum—German
Potassii chloras	Kalium chloricum—German, etc.
Sodii chloridum	Natrium chloratum—German, etc.
Oleum tiglii	Oleum crotonis—German, etc.
Acetphenetidinum	Phenacetinum—German, etc.
Antipyrina	Phenazonum—British
Benzosulphinidum	Glusidum—British Saccharinum—German, Austrian
Potassii bitartras	Tartarus depuratus—German
Potassii et sodii tartras	Tartarus natronatus—German
Antimonii et potassii tartras	Tartarus stibiatus—German

tonin, wine of colchicum, tincture of lobelia, or fluidextract of nux vomica, the result might easily be worse.

The one prescription in a hundred thousand or perhaps a million that is carried abroad and filled there should not only be translated into the pharmacopeial language of that country, but also revised, so as to be correct as regards the strength of the preparations of that pharmacopeia.

3. International use of Latin in medical literature would be an argument of some importance in favor of Latin prescription writing; but, as can readily be shown, the *Latin names of drugs are far from being international.* Examples are given in Table 3.

Any one who reads and understands English well enough to study English literature would surely have no difficulty in understanding a prescription written in English. Should other nations retaliate by using their language instead of Latin, that would hardly require a greater knowledge of the foreign tongue than would be needed for the use of the literature of that language. Should, however, the other nations persist in the use of Latin, the knowledge needed to translate these prescriptions into English would be much more easily acquired than the ability to write Latin prescriptions correctly. In point of fact, however, as one looks over current literature, in various languages, one finds very few Latin prescriptions. Generally, whenever medicines are mentioned, in German, French or English literature, dosage and method of administration are discussed in the language in which the article is written and not in Latin.

4. Inasmuch as it is the popular opinion that doctors use Latin in prescription writing to keep the laity in ignorance for selfish ends, it seems high time that we antagonize this idea; and we can do this most emphatically by using English. This we can also do with perfect safety, for *secrecy is very rarely, if ever, essential* in the practice of the up-to-date physician,

ILLUSTRATIVE PRESCRIPTIONS

Prescription in Latin

	gm. vel c.c.
℞ Ammonii chloridi	5
Syrupi ipecacuanhae	8
Aquae q. s. ad	60

Misce et fiat solutio.
Signa: Teaspoonful in water every two hours.

Prescription in English

	gm. or c.c.
℞ Ammonium chloride	5
Syrup of ipecac	8
Water to make	60

Mix and make solution.
Label: Teaspoonful in water every two hours.

Prescription in Latin

	gm. vel c.c.
℞ Hydrargyri chloridi mitis	.06
Sacchari lactis	2

Misce et divide in chartulas x.
Signa: One every hour.

Prescription in English

	gm. or c.c.
℞ Mild mercurous chloride	.05
Sugar of milk	2

Mix and divide into ten powders.
Label: One every hour.

Prescription in Latin

	gm. vel c.c.
℞ Morphinae sulphatis	
Extracti belladonnae, ana	.12
Olei theobromatis	24

Misce et divide in suppositoria xii.
Signa: One every four hours, as needed.

Prescription in English

	gm. or c.c.
℞ Morphine sulphate	
Ext. of belladonna, each	.12
Oil of theobroma	24

Mix and divide into twelve suppositories.
Label: One every four hours, as needed.

who generally prefers to take his patient into his confidence than to keep him in ignorance. Deception is not practiced by the true physician. Therein lies the special difference between the quack and the honest medical man. Furthermore, Latin prescription writing does not really contribute much more to secrecy than the use of English, for the *Latin and English official terms for drugs and preparations are often identical, generally very similar to each other.* So similar are they, that certain books on prescription writing advocate the use of synonyms, as pulvis Doveri, liquor Fowleri, etc., when it is undesirable in the patient's own interest for him to become acquainted with the treatment. When it is stated that self-medication might be encouraged by the use of English, I fail to see the force of the argument. Is the patient more likely to call for sodium bromid at the drug store when it is written "sod. brom.," standing for sodium bromid, than when it is intended to read "sodii bromidi"?

That, with few exceptions, the use of English gives the patient no more and no less information than the use of Latin, may be seen from the accompanying illustrative prescriptions.

In respect to the fifth reason, all that seems to be necessary is to call attention to the fact that the time allotted to the teaching of pharmacology and therapeutics is extremely limited, actually insufficient to teach the essentials. Is it not reasonable to suppose that a conscientious teacher, freed of the necessity of burdening his course with the teaching of Latin forms, would have more time to spare for the more important facts in connection with prescribing? Surely, making a subject more complicated does not lead to a better mastery of it.

It has been my experience that the teaching of Latin prescription writing makes it difficult to get into the students' minds the really important facts about prescribing, namely, the "art of prescribing," or more specifically, the "technic of medication," which has nothing to do with the language used. This is a matter that is not sufficiently studied by medical students or practitioners; and it is not improbable that focusing attention on the mere language of the prescription causes the really important question relating to the most efficient and most pleasant administration of the remedy frequently to be lost sight of.

It is true that students now come to us with better preliminary training than was formerly the case; it is also true, however, that even a professor of classical Latin would have to learn our prescription "Latin" almost as if he had not studied Latin before, for the Latin of prescriptions consists essentially of Latinized modern terms. One can find but few of them in a dictionary of classical Latin.

That the teaching of Latin prescription writing has so far contributed but little toward the preservation of good form will be admitted by any one who has had experience behind the prescription counter. An investigation[2] which I conducted on the quality of prescription writing in this country, to which 100 leading pharmacists in various sections of this country contributed and which represented an examination of 10,000 prescriptions, showed that less than one half of all prescriptions are written in correct Latin form, 36 per cent. of all prescriptions being written in English and 18 per cent. in poor Latin. If there is any error in this compilation — and it must be admitted that modern pharmacists generally have merely a knowledge of what might be called "prescription Latin," it is likely to be in the way of overlooking minor errors in Latin; so that probably much less than half of all prescriptions are written in correct Latin form — surely a poor showing for the time and energy invested in teaching Latin prescription writing.

Even the Latin prescriptions published in current medical literature, in periodicals as well as in textbooks, including those published in some books on prescription writing, contain enough errors to make their authors blush were they pointed out to them. Would it not be better to have prescriptions written in correct English than to have them written in the slipshod and at times ridiculous way in which so many of them are written at present?

While, therefore, none of the arguments in favor of Latin prescription writing can be said to be irrefutable, a number of arguments in favor of English prescription writing deserve consideration.

1. The Roman numerals, especially I and L (standing for 1 and 50) are apt to be mistaken for each other, while our common numerals are much more distinct from each other in appearance (E. G. Eberle).

2. Few of us are sufficiently versed in Latin to be able to express directions to the pharmacist that are in any way unusual. Even if we were capable of writing such directions in Latin, not one druggist in a hundred would be able to understand them. Unusual directions to the pharmacist are, therefore, generally written in English, even in Latin prescriptions, which, though endorsed in the committee report quoted above, is really less correct than using either language throughout.

3. New drugs are continually being introduced, the coining of the Latin names for which is an embarrassment to the prescriber.

4. It is probable that the fear of making mistakes in the Latin form is one of the contributing causes to that therapeutic abomination, the prescribing of ready-made official or proprietary mixtures. *Latin prescription writing absolutely stifles originality in prescribing.*

5. After all, the whole proposition of writing prescriptions in Latin is a pretense at a knowledge of Latin, of which most of us possess so little that we would be unwilling to have our ability tested by one who is a recognized authority in that language. Encouraging students to think that it is a creditable thing to shine in a veneer of knowledge as superficial as that of Latin usually is cannot but have a detrimental effect on the inculcation of the principle of thoroughness that should guide all good teaching.

6. By far the most important reason for writing prescriptions in English lies in the difficulty medical students have in learning the Latin form. To the student, prescription writing is a bugbear. When one thinks of the crowded medical curriculum and the comparatively small number of hours set aside for pharmacology and therapeutics, it seems a pity to waste any of it on the acquiring of an antiquated form of expression.

It appears that the real reason for prescription writing in Latin is historic. It originated in the days when Latin was the chief medium for exchange of scientific thought. No longer, however, are scientific lectures delivered in the Latin tongue, no longer are medical books written in Latin, no longer is it considered essential for an educated man to speak Latin; and yet we still feel bound to write prescriptions in that dead language. Is it not time to relieve our medical students of this useless burden that is put on them to the detriment of something else that would be much more useful to them and to their patients? *Let us at least admit that a prescription correctly written in official English is as good as one written in Latin.* Let us permit students and practitioners to use whatever form they prefer, and let us merely hold our students for a sufficient knowledge of the Latin form to enable them to translate and understand such prescriptions.

A DIGEST OF REPLIES TO QUESTIONNAIRE ON PRESCRIPTION WRITING IN ENGLISH

A preliminary draft of this article was sent to leading medical teachers, to deans of schools of pharmacy, and to secretaries of state boards of health. For the numerous replies obtained in return, and, most especially for a number of suggestions received from some of those in favor as well as some of those opposed to

2. Fantus, Bernard: What Instruction Ought Medical Colleges to Give in Pharmacology and Therapeutics, Part B of Symposium, The Viewpoint of the Pharmacist, Quart. Fed. State Med. Boards of U. S., 1914, p. 293.

the proposition, I wish to express my sincere thanks. An analysis of the reports gives the following results:

Of sixteen deans of colleges of pharmacy who responded, ten were in favor of the proposition, four were opposed, and two were neutral.

Among ninety-two medical teachers, who responded, sixty-seven were in favor, twenty-two opposed, and three neutral.

In two institutions, the question of prescription writing in English was taken up in faculty meeting. The faculty of the School of Medicine of Yale University voted, Jan. 24, 1916, that "it was the sense of the faculty that English be the language of choice in instruction in prescription writing." The faculty of the University of Michigan, on the other hand, passed a resolution, Jan. 25, 1916, opposing the writing of prescriptions in English. In its opinion, more time, instead of less, should be given to Latin.

An interesting reply was received from Prof. Gabriel Casuso, president of the University of Havana, Cuba, from which I quote: "I believe you are right in every respect — among us, the laws governing the matter, although they do not restrain the use of Latin, allow the employ of the vernacular tongue, and the pharmacists are not obliged to dispense prescriptions unless they are written in plain Spanish."

To secretaries of state boards of health, the question was sent, "Would your examining board give a candidate a low grade, should he, in an examination, write a prescription in correct English instead of writing it in Latin"?

In reply to this, the following state boards expressed, through their secretaries, presidents or examining officers, their willingness to accept prescriptions written in English at the same value as those written in Latin: Alaska, Arkansas, California, Connecticut, Florida, Louisiana, Montana, Minnesota, Massachusetts, New Mexico, Ohio, Rhode Island, Virginia, Vermont, Wisconsin and West Virginia.

The following state boards have declared their objection to prescription writing in English: Illinois, Iowa and New Jersey: This makes a total of sixteen in favor, and three opposed.

From this it will be seen that the sentiment in favor of English prescription writing is surprisingly general.

A CASE OF TORSION OF THE SPERMATIC CORD WITH TERATOMA OF THE TESTICLE*

J. W. BABCOCK, M.D., NEW YORK

The combination of torsion of the spermatic cord with a new growth of the testicle seems so unusual as to warrant a report of this case. The search of the records of a few years, which were available to me, failed to reveal a report of this particular association of lesions, though, doubtless, it is not unique.

The subsequent course of the case should also be of interest, for the patient was operated on sixty-one days after the first symptom referable to the tumor of the testicle, only the more acute symptoms of torsion, however, causing him to consult a physician. The bad prognosis of new growth of the testicle, we hope, will not apply to this case on account of its early radical treatment. Bulkley[1] gives a record of eight deaths within one year following operation for malignant disease of the testicle, in fifteen cases, or 53⅓ per cent.; and only two of these patients, or 13⅓ per cent., were known to be alive and well after two years. Nearly all the other reported cases of malignant disease of the testicle are supplemented by accounts of subsequent and early death with recurrence, usually distant metastases. In the case reported the patient was seen five months after operation, and at that time showed no symptoms or signs of recurrence.

CASE REPORT

History.—C. C., man, white, aged 24, clerk, admitted to Presbyterian Hospital Oct. 8, 1915, injured the left testicle with his thigh six weeks before in sitting down, causing only slight pain. The next day a slight swelling of the left testicle was noted, which continued without appreciable change and was accompanied by slight soreness in the left testicle, radiating up to the left hip and lumbar region, but not incapacitating him.

On the morning of admission, on stretching, after getting out of bed, he was seized with an excruciating pain in the left testicle, and the testicle became hard and tender. He was seen by a physician, who said it was a hernia, and manipulated it without relief. There were no general symptoms.

The patient's past and family histories were negative, except that he had a small left inguinal hernia six years ago, which disappeared after wearing a truss for one year. Venereal disease was denied.

Examination.—The patient was well developed. He suffered acute pain. The left testicle was twice the size of the right and slightly tender; the left epididymis was posterior, slightly swollen and extremely tender. A tiny cystic mass was palpable just above the globus major. The spermatic cord was slightly thickened, not nodular, and very tender up to the internal abdominal ring. Rectal examination was negative. There was no discharge from the meatus.

Temperature, pulse and respirations were negative. Blood count showed 16,000 white blood cells with 88 per cent. polymorphonuclears. Examination of the urine was negative.

Treatment and Course.—The patient experienced great relief from pain after use of support to scrotum, an ice cap and ichthyol. The swelling, however, increased somewhat in size, owing to a collection of fluid in the tunica vaginalis. Some difficulty was experienced in reaching a diagnosis, but finally acute epididymitis and orchitis, with the possibility of an underlying tuberculosis of the epididymis was considered most probable, and the patient was allowed to go home, Oct. 16, 1915, to continue conservative treatment. It is interesting to note that the correct diagnosis was considered and thought improbable.

The patient was readmitted, Oct. 26, 1915, having had a sudden increase in his pain and the swelling six days before, relieved somewhat by aspiration of a small amount of clear yellow fluid from the tunica vaginalis.

Physical examination then showed a firm, moderately tender mass in the left side of the scrotum, not so heavy as solid tumors usually are, and showing a small amount of fluid without great tension, in the tunica vaginalis. The tenderness extended along a somewhat thickened and nodular cord up to 1 inch beyond the external abdominal ring. Rectal examination was negative.

Operation.—Next day, by courtesy of Dr. S. Burnap, I performed a left orchidectomy with high ligation of the cord, with the following findings: There was a moderate amount of serous fluid in the tunica vaginalis. The testicle was enlarged to about 2 inches in diameter, and on exploratory incision yielded only a few drops of dark blood. The epididymis was brown and not enlarged. The testicle was rotated 360 degrees counter-clockwise, and the veins in the spermatic cord above the twist were firmly thrombosed. There was no definite gangrene, and the existence of the teratoma was not suspected; but relief of the torsion did not improve the circulation, and the torsion showed a tendency to recur, so orchidectomy was deemed advisable.

The patient made a satisfactory recovery with no complications, and was examined five months later, when he showed no symptoms or signs of recurrence.

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* From the service of Dr. E. Eliot, Jr., at the Presbyterian Hospital in the City of New York, by permission of Dr. G. E. Brewer, Surgical Director.

1. Bulkley, K.: Malignant Disease of Retained Testicle, Surg., Gynec. and Obst., 1913, xvii, 703.

Pathologic Report (by Dr. F. B. St. John)—The specimen consists of a testicle and epididymis measuring 5.5, 5.5 by 4.5 cm., with 4.5 cm. of spermatic cord. Part of the wall of the tunica vaginalis is hemorrhagic. The surface of the testicle is shiny, reddish gray and smooth. It is rather soft and fluctuating in consistency.

Microscopic examination shows a normal testicular glandular arrangement, but the testicle proper is largely replaced by connective tissue, in the center of which is a large area of cells, made up almost entirely of cartilage cells. The periphery of this area seems to merge indefinitely into surrounding connective tissue. Outside of this rather dense central area is a large area of polymorphonuclear infiltration and round cells, beyond which is definite necrosis, consisting of poorly stained cell débris.

Diagnosis.—Teratoma of testicle with acute inflammation.

75 East Eighty-First Street.

Therapeutics

HEMORRHAGIC CONDITIONS

(*Continued from p. 1623*)

HEMOPHILIA (BLEEDERS)

Hemophilia is a condition, usually hereditary, characterized by a decrease in the coagulation time of the blood and frequently resulting in death from hemorrhage. The hemorrhage may be spontaneous, or it may be initiated by a cut, bruise or blow. The bleeding is not limited to any part of the body.

Hemophiliacs, commonly known as "bleeders," are of the male sex. Female "bleeders" have been reported occasionally, but not enough evidence is furnished to show that these are true hemophiliacs. Hess[1] characterizes some of these cases in females as hereditary purpura. The disease is transmitted through the female members of the families to their male offspring. Such cases can be traced through generations of families, several male members, but not all necessarily, of one generation being affected. Often the hemophilic tendency will make its appearance early in infancy, occurring at birth when the umbilical cord is severed. J. E. Welch[2] mentions such cases, and also bleeding from other parts in the new-born under the name of "hemophilia neonatorum."

Various theories have been advanced as to the etiology of this condition. These can be divided into two groups: (1) deficiency in one or more of the blood elements, and (2) deficiency in the elements of the cells of the blood vessel walls. In the first group the hemorrhage has been attributed to lack of calcium, deficiency or prothrombin, or to an excess of antithrombin. Weil[3] has even claimed the presence of anticoagulants in the blood. On the other hand, it has been asserted that there is abnormal fragility of the blood vessel or that there is lacking in the cells of the wall a fibrin-forming substance — thrombokinase. No doubt cases may be found that are explainable by any of these theories.

Certain factors relating to the blood in hemophilia have been definitely proved. It has been repeatedly shown that the coagulation time of the blood is prolonged. Normally blood will coagulate in from ten to twenty minutes; with the same methods for determining coagulation time of the blood in hemophiliacs, it has been shown that the coagulation time may be prolonged for as long as five hours. Hess states that the coagulation time should be taken at different periods, since occasionally it may approach normal. It is probable that on the occasions when it approaches normal there is admixture of juices containing thrombokinase from tissue at the site of puncture. Duke[4] and others have shown that the blood platelet count in hemophilia does not vary from the normal, whereas in purpura hemorrhagica it is lower than normal. In exceptional cases, such as one mentioned by Hess, the calcium content has been found unchanged. Howell[5] found a deficiency in prothrombin, the antithrombin being normal or only slightly increased.

A hemophiliac may be unrecognized until hemorrhage occurs, from any cause or spontaneously. Profuse epistaxis is frequent, or severe hemorrhage may follow tooth extraction, or there may be bleeding into the stomach or intestines. The hemorrhage may be subcutaneous, following blows, and resulting in the formation of hematomas. A well-known symptom of hemophilia is effusion into the joints. The larger joints are most often affected, particularly the elbow, knee or ankle joint. This hemarthrosis may first manifest itself by pain in the joint, soon followed by swelling. Occasionally fever is associated with it. The true nature of the condition is often not diagnosed, a common diagnosis being articular rheumatism or tuberculous arthritis. Operations based on incorrect diagnoses have resulted fatally. If the joints are not opened, but are treated gently by massage or heat, the effusion of blood disappears, sometimes within a few days, or sometimes only after weeks or months. Recurrences may follow, but the tendency for this grows less as the patient becomes older. Following one absorption of blood there may be a partial ankylosis.

TREATMENT

The treatment of hemophilia up to within a recent period has been as varied as the theories of its cause. Recently it has become more uniform because of successful experiences covering a large number of cases. Treatment may be general and local. It depends to a great degree on the location of the hemorrhage. If there has been considerable loss of blood, the patient should be supplied with sufficient fluids to help make up this loss. Milk is recommended, both on account of its calcium content and because of its nutritive value. If marked anemia is present, iron in convenient form should be given. This may be administered by the saccharated oxid, in 3-grain tablet, crushed with the teeth before swallowing, one tablet two or three times a day, after meals; as the reduced iron in 0.10 gm. dose, in capsule, two or three times a day, after meals; the Blaud pill, 3 grains, two or three times a day, after meals, or the tincture of the chlorid of iron in 5-drop doses, in fresh lemonade or orangeade, three times a day, after meals. As has frequently been stated, there is no advantage in an organic iron over an inorganic iron, and there is no necessity of giving large doses of iron in simple anemia.

For directly diminishing the coagulation time of the blood two methods have been tried. The first consists

1. Hess, A. F.: The Blood and the Blood Vessels in Hemophilia and Other Hemorrhagic Diseases, Arch. Int. Med., February, 1916, p. 203.
2. Welch, J. E.: Am. Jour. Med. Sc., June, 1910, p. 800.
3. Weil: Press méd., 1905, xiii, 673.
4. Duke, W. W.: The Pathogenesis of Purpura Hemorrhagica with Especial Reference to the Part Played by Blood-Platelets, Arch. Int. Med., November, 1912, p. 445.
5. Howell, W. H.: The Condition of the Blood in Hemophilia, Thrombosis and Purpura, Arch. Int. Med., January, 1914, p. 76.

of the administration of empiric remedies supposed to supply one of the missing factors necessary for coagulation. Calcium in some form is frequently of benefit in these cases. It may be administered as simple lime water in tablespoonful doses, three or four times a day, given in milk or in water; or as calcium lactate, in dose of 0.3 gm. (5 grains) given in some solution three or four times a day. Calcium chlorid is perhaps most frequently used, but it is more irritant and of no greater efficiency than other forms of calcium. The dose should be about 0.3 gm., given very well diluted, and three or four times a day, as desired. This form of calcium is more likely to upset the stomach than are other forms.

Another remedy used for local application is epinephrin. Its value is based on its vasoconstricting action. In hemophilia it has been tried without apparent success.

The best results obtained have followed the use of serums. Various kinds have been administered, among which are rabbit, horse and normal human serum. The serum has been used in different forms freshly obtained from the blood in the form of plain horse serum or weak preparations of diphtheritic antitoxin when other serum is not available; also solutions of the dried serum. Of late controversy concerning serum therapy has been confined mainly to the kind of serum producing the best results. All are agreed as to the value of serum in hemophilia.

Serum may be administered intravenously, subcutaneously, or applied locally to the bleeding point, if it can be reached. When given intravenously or subcutaneously, proper aseptic precautions should be taken. For intravenous injection, from 10 to 20 c.c. can be given every day until the bleeding stops, whereas for subcutaneous injection this dose should be doubled. The intravenous injection has great advantage over other methods, since by mixing intimately with blood it supplies more rapidly the absent elements necessary to increase the coagulability of the blood. When given subcutaneously, the serum must first be absorbed into the blood stream from the tissues, and before this can occur it will probably undergo a certain amount of change from action by the tissue cells.

Normal human serum, if this can be obtained, is without doubt the best to use, since it contains no foreign proteins. Cooley[6] suggests that "the blood-forming tissues react to the stimulus of normal serum (or blood) by the formation of normal blood and that possibly there is a reaction between normal blood and the vessel-walls, lacking in certain abnormal states, which explains the complete cessation of hemorrhage."

It has been found that following the administration of either rabbit, or more particularly, horse serum there occasionally follows definite symptoms to which has been given the name "serum sickness." This consists of a rise in temperature and the formation of an urticarial rash, the rash often being surrounded by an area of edema. The urticarial rash often fades into a scarlatiniform rash that lasts for several days.

Horse serum (or diphtheritic antitoxin) is the most convenient form, as it is readily obtainable. There must be borne in mind, however, the possibility of anaphylactic shock, which should be carefully considered before the serum is administered to those patients who have more or less recently received injections of antitoxin. Also, before any horse serum is injected it should be known that the patient does not suffer from hay-fever or asthma from horse emanations.

Unless proper agglutination and hemolysis tests are first carried out, just as they are for transfusions, whole blood should not be injected into the veins.

Good results have been reported from the use of tissue extracts applied locally to the bleeding point. These tissue extracts have been thyroid, ovary, liver, pancreas, kidney and spleen. The thyroid extract has been used most frequently. No good reason has been offered for the hemostatic properties of tissue extracts. Not infrequently profuse hemorrhages have been stopped by the administration of thyroid. While thyroid extract increases a liability to hemorrhage in most individuals, and may even cause menstruation or increased menstrual flow in some instances, in hemophiliacs it has at times been successful in stopping bleeding when other treatments have failed. Also, occasionally in profuse bleeding occurring at the time of the menopause, thyroid substance given in large doses, as much as 4 grains of the desiccated thyroid three or four times a day for a few days and then the dose reduced, has stopped bleeding when all other medication has failed.

As a last resort, transfusion itself may be tried. The usual precautions should be taken, the blood of both patient and donor being tested for hemolytic and agglutinative properties. A Wassermann test of the donor's blood should also be made. Ottenberg and Libman[7] state that "every individual known to have hemophilia ought to have at his command several persons whose blood, by previous tests, is known to be compatible with his and who are willing, when called on, to give blood for transfusion." If these blood tests have been made a long time before, the character of the blood may have changed; therefore such tests should not be relied on, but fresh tests should be made. They also state that in transfusions some blood element is supplied that has been lacking, and on that account the cure is not always permanent as the supply is only temporary. They report a series of five hemophiliacs who were transfused, and in every case the hemorrhage stopped after transfusion.

Inasmuch as there is a high mortality in hemophilia, unless the hemorrhage is promptly and completely checked, advantage should be taken of every available means to obtain serum or to make arrangement for a transfusion. If there is no source from which fresh serum can be obtained, and if for any reason transfusion cannot be done, horse serum or antidiphtheritic serum, which can always be procured, should be injected. We would also refer a physician interested in this subject to a recent article by Hurwitz and Lucas (*Arch. Int. Med.*, April, 1916, p. 543).

(To be continued)

6. Cooley, T. B.: The Treatment of Hemorrhagic Disorders, THE JOURNAL A. M. A., Oct. 4, 1913, p. 1277.

7. Ottenberg and Libman: Am. Jour. Med. Sc., 1915, cl, 36.

The Economics of Hygiene.—The great preventable wastes in this world are, I believe, wastes which can be prevented only, or chiefly, by hygiene. Crime, vice, insanity, disease, death and poverty could be wonderfully reduced by applying hygienic knowledge, even the little already available. The economic cost from wrong habits and conditions of living is, I am convinced, on the basis of such fragments of evidence as are obtainable, so colossal that even workers in this field would be astonished if the whole picture could be revealed.—Fisher.

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SATURDAY, MAY 27, 1916

THE RESTORATION OF THE BLOOD VOLUME AFTER HEMORRHAGE

Any considerable diminution of the total volume of the blood, as by bleeding, would obviously lead to serious consequences unless compensatory activities of some sort promptly ensued. Any resulting depression of the circulation through the brain, for example, would speedily be attended with deleterious effects of a far reaching character. Fortunately this is usually averted in part by the general vascular constriction which follows hemorrhage, diminishing the total capacity of the circulatory system and altering the distribution of pressures throughout it. In addition to this response, the deficiency of blood caused by removal of this fluid is soon remedied by a transfer of fluid from the tissues to the blood. The exchange goes on with surprising rapidity, often beginning even during the course of the hemorrhage.

How this transfer is accomplished has been somewhat of a physiologic puzzle. The passage goes on far too rapidly to be accounted for by the slow flow of lymph into the blood stream, and for a variety of additional reasons this factor can be excluded as being of primary significance. It was suggested by Landerer[1] that when the pressure in the blood capillaries falls, as the result of hemorrhage, below that in the tissue spaces, the fluid present there is forced back into the capillaries. This is the so-called backward filtration theory. According to Starling,[2] on the other hand, there is normally a balance in the production and absorption of tissue fluid between the filtration pressure in the capillaries and the osmotic pressure of the colloids of the blood and tissue fluid. Plasma and tissue fluid are practically identical in their composition in everything except protein. Starling showed that the blood proteins exert an osmotic pressure of about 4 mm. of mercury for every 1 per cent. of protein. Since the plasma contains more protein than the tissue fluid, its osmotic pressure is greater, and this greater osmotic pressure should cause an absorption of fluid when the capillary pressure is reduced.

Dr. F. H. Scott[3] of the University of Minnesota has pointed out that after hemorrhage, if the backward filtration theory is correct, the fluid which enters the blood should have some protein, while according to Starling's theory the fluid should be practically salt solution. Thus it seemed possible that a comparison of the protein content of the blood before hemorrhage and a short time after it might throw light on the nature of the fluid passing into the blood. In a newer investigation of the subject, Scott has indeed found that after hemorrhage an increase occurs in the total protein of the blood plasma, corresponding to a protein content of from 0.6 to 2.01 per cent. in fluid which has passed through the capillary wall from the tissue spaces to the blood. But similar increases of protein may also be observed after injection of Ringer's solution into the blood and when, as a consequence, the injected fluid instead of entering the blood is leaving it for the tissue spaces at a rapid rate. It has been shown that dilution of the blood in vitro with isotonic salt solutions may lead to an increase of the nitrogen in the plasma. The gain must, of course, be derived from the corpuscles. The dilution of the blood in the circulation itself, caused by the intake of fluid from the tissue spaces, produces a change similar to that caused by diluting the blood in vitro with isotonic salt solution. In the living circulation the endothelial cells of the blood vessels might also share in the contribution of protein to the diluting fluid. Consequently an increase of protein in the plasma after hemorrhage is no evidence of backward filtration, and is consistent with Starling's view that in restoring the volume of the circulation the fluid passes into the capillaries by osmotic action.

1. Landerer, A. S.: Die Gewebsspannung in ihrem Einfluss auf die örtliche Blut- und Lymphbewegung, Leipzig, 1884.
2. Starling, E. H.: Jour. Physiol., 1896, xix, 312.
3. Scott, F. H.: The Mechanism of Fluid Absorption from Tissue Spaces, Jour. Physiol., 1916, L, 157.

THE STRUCTURE OF THE THYROID IN RELATION TO ITS FUNCTION

Attempts to correlate the functioning of various glandular organs of the body with corresponding alterations in their structural make-up have been frequent in the modern history of the physiology of secretion. In this way it has been demonstrated that the histologic appearance of the cells of the secretory glands which discharge their product into the alimentary tract changes with the state of the glands in respect to rest or activity. The morphologic alterations incident to the secretion of structures of this type are of the same general character, whatever the class of digestive glands that is investigated. In the salivary glands, for example, the resting cells show a mass of highly refractive granules distributed in the protoplasm. After vigorous secretion, the individual cells are as a rule found to be smaller, and the simple protoplasm is

relatively increased in amount, while the granules are much fewer and are now confined almost entirely to the inner margins of the cells near which they are ordinarily discharged or converted into secretion. Activity is thus associated with a discharge of granules, and probably with some increased production of protoplasm. As one physiologist has expressed it, we may regard the act of secretion as determined by the alteration of the granules and their discharge, together with water and salts, to form the specific secretion of the gland. During rest the granules are formed anew by precipitation in the protoplasm surrounding the nucleus, or by modification of it. Although the granules form the secretion, presumably they represent, not the secretion as such, but a precursor of some of its constituents.

Inasmuch as the so-called ductless glands of internal secretion, or the endocrine glands, as they have been called of late, show many structural similarities to the familiar secretory glands, there has been a tendency to apply analogies derived from the latter to the functions of the former class. If it were possible to correlate definite changes of structure with functional phenomena, it would, of course, enable one to form some estimate of the "secretory potential" of a gland by a histologic examination of its cells. The thyroid gland contains cells which resemble those of an ordinary secreting gland in many ways, notably with respect to the granules and other cytoplasmic details as well as the arrangement of the cells in the organ. The search for histologic evidences of the secretory activity which is indicated by a variety of physiologic experiences has revealed rather conflicting results. The thyroids are composed of vesicles of different sizes, which are lined by a single layer of cuboidal epithelium and contain in their interior the material known as colloid. Inasmuch as the gland possesses no duct it has been supposed that the cells furnish their specific product, that is, an "internal secretion," to the blood along the lymphatic efferents of the gland. Accordingly, it is stated that the colloid which has been looked on as identical with the active substance of the secretion is formed in the lining epithelial cells, and that the vesicles finally rupture and discharge the colloid into the surrounding lymphatic spaces.

Bensley[1] has recently pointed out how baffling the interpretation of the presence of the storage product in the thyroid has been. The route and rate of absorption of the thyroid colloid have remained problematic after years of observation, though chemical and physiologic studies have indicated that it contains the physiologically active thyroid component. Bensley recalls that some observers have even doubted the resorption of this material, and have suggested that the function of the thyroid gland is primarily to withdraw toxic substances from the blood. Others have conceived the colloid as a sort of menstruum in which the real thyroid secretion is received and from which it may be withdrawn without visible change in the colloid itself. Still others have held the view that the colloid is the real secretion of the thyroid gland, and that the normal mechanism of thyroid secretion is by this indirect route, first secreting into the center of the follicle and then withdrawing this warehoused material, as functional needs require, by some unknown method and route.

The experimental prosecution of investigation in this field is rendered difficult by the fact that few, if any, reliable methods of provoking thyroid function are known, so that it is not easy to decide whether a given gland is in a state of normal activity or hypersecretion. In an elaborate research on the structure of the thyroid as modified by diet and drugs, Bensley[1] has succeeded in demonstrating histologically the presence of what he terms the "secretion antecedent." The substance occurs in vacuoles, present exclusively in the outer pole of the cell, which contain a dilute solution similar in its properties to the colloid of the follicular lumen, differing from the latter only in density. The secretion collected at the outer margin of the thyroid cells is believed to be destined to direct transport into the vascular channels. In accord with its endocrine function, the thyroid cell thus represents a true reversal of "polarity," unlike the exocrine glands of the alimentary tract, discharging its active product away from the real follicular cavity directly into the surrounding medium.

The theory just presented fails, however, to account for the occurrence of the intrafollicular colloid in contact with the inner surfaces of the cells. It has frequently been observed that stored colloid may be withdrawn from the gland in a short period, and that the thyroid may be maintained for months in a condition in which little visible colloid is present. Bensley has reached the conclusion that in addition to the direct mode of secretion already described, there is an indirect mode which consists in the condensation of the secretion into the form of droplets having a high content of solids, and the extrusion of these into the follicular cavity. This implies that when the rate of production exceeds the body needs, the product of secretion is condensed, as it were, and stored as the familiar colloid in the intrafollicular spaces. On this hypothesis iodin, either by accelerating the activity of the gland cells or by inhibiting the removal of the product, causes the cells to reverse their usual processes and store colloid in the cavities.

If Bensley's observations prove to be tenable, the much discussed colloid in the thyroid vesicles is, by itself, no measure of the momentary activity of the gland, though it may indicate the capacity of the gland for storage of its physiologically active secretory product. Conversely, lack of colloid need not imply

1. Bensley, R. R.: The Normal Mode of Secretion in the Thyroid Gland, Am. Jour. Anat., 1916, xix, 37.

a permanent depression of actual glandular function, but merely a temporary depletion of storage material. Dietary conditions, notably an excess of meat in the ration, may give rise to a condition of hyperplasia of the thyroid gland; iodids, on the other hand, facilitate the storage of colloid.[2] These suggestions place the rôle of the thyroid colloid in a new light. They permit the known facts, often seemingly contradictory, to be viewed in a new way, and may serve to illuminate what has long been a most perplexing theme.

THE INCIDENCE OF BOVINE AND HUMAN TUBERCLE BACILLI IN MAN

The controversy regarding the significance of the bacillus of bovine tuberculosis in relation to human hygiene, carried on ever since Theobald Smith, in 1898, made his systematic comparative study of bacilli isolated from man and cattle and pointed out differences between the two types, has lost much of its acrimony. From a practical standpoint it is, of course, very important to learn whether the bovine and human diseases caused by the respective bacilli are mutually interchangeable. At present it seems to be agreed that while cattle are to a considerable extent immune against the bacillus of the human type, human beings do not enjoy the same safeguard in respect to the bovine bacillus. During adult life, however, the danger of such infection is far less than it is during infancy and early youth.[3]

In the extensive investigations of Park and Krumwiede,[4] which have furnished some of the most important data respecting the types of tubercle bacilli which sojourn in the human body, it was found that out of a total of 1,042 cases, only 101 were bovine in origin, and over half of these occurred in children under 5 years of age. Incidentally it may be noted that fifty-one out of the fifty-nine cases occurring in the 161 infants examined were directly or indirectly traced to alimentary infection, thus emphasizing the importance of a rigid sanitary control of milk supplies, on which infants are so largely dependent.

More recently Eastwood and Griffith,[5] in Great Britain, have made a report of the relative distribution of the various strains of tubercle bacilli in human bone and joint tuberculosis, and likewise, in a smaller number of cases, in tuberculosis of the genito-urinary tract in man. For the former investigation the material examined was removed directly from an affected joint or bone, or from an abscess in the neighborhood of such lesion. Out of a total of 261 patients, fifty-five, or 21 per cent., were "bovine" cases. Ten were recorded as atypical. Only three of those reported on as harboring the bovine bacilli were over 16 years of age. The incidence of the types is further shown by the fact that whereas under 10 years of age forty-five out of 155 cases, or 29 per cent., were bovine, over 10 years only ten out of 106, or 9 per cent., were of this type.

In their report of 1910, Park and Krumwiede[4] described only two bovine cases out of a total of sixty-five cases of tuberculosis of bones and joints. Twelve patients with tuberculosis of the genito-urinary tract disclosed only one infection of the bovine variety, the persons examined being adults, with one exception. Seventeen cases, which were about equally distributed between the genital organs and the urinary tract, were investigated by the British bacteriologists. The bacilli obtained were of the "human" type in fourteen cases, and "bovine" in three, the latter involving affections of the kidneys in persons aged, respectively, 25, 19 and 20 years. Investigations of this sort, laborious as they are, seem well worth while from the standpoint of public health propaganda. They give added assurance that although human adults are perhaps reasonably insusceptible to bovine infection, this mode of transmission can take place even beyond the years of infancy and childhood, in which the danger is unquestionably great.

PELLAGRA IN NASHVILLE

An increase in the morbidity and mortality from pellagra in Nashville, Tenn., since 1911, provided the opportunity for a thorough survey of over half of the city, including 65,000 persons, by a pellagra commission, the results of which have recently been reported by Jobling and Petersen.[1] Starting out with no preconceived theory as to the etiology of the disease, the commission gathered data, in more than 500 cases of pellagra, as regards the manifestations of the disease itself, its possible relations to sex, age and race, the season of the year, social and economic conditions, housing, occupation, diet, milk and water supply, parasitic infestation, method of sewage disposal, and previous exposure.

The carefully analyzed statistics indicate that women from 20 to 50 years of age are affected from three to four times more frequently than men, though from 50 years on, the two sexes seem equally susceptible; that children, particularly during the second decade of life, are less subject to the disease than adults; that negroes are as susceptible as white people and that among them the mortality is higher; and that the majority of the pellagrins had their attacks during the spring and summer months, the white people more frequently during the spring, the colored people during the summer—a fact of interest in connection with the

2. Bensley, R. R.: The Influence of Diet and Iodids on the Hyperplasia of the Thyroid Gland of Opossums in Captivity, Am. Jour. Anat., 1916, xix, 57.

3. Compare Hiss, P. H., Jr., and Zinsser, H.: A Textbook of Bacteriology, New York, 1914.

4. Park and Krumwiede: Jour. Med. Research, October, 1910.

5. Eastwood, A., and Griffith, F.: The Characteristics of Tubercle Bacilli in Human Bone and Joint Tuberculosis, Jour. Hyg., 1916, xv, 257; The Types of Tubercle Bacilli Occurring in Tuberculosis of the Human Genito-Urinary Tract, ibid., 1916, xv, 310.

1. Jobling, James W., and Petersen, William: The Epidemiology of Pellagra in Nashville, Tenn., Jour. Infect. Dis., 1916, xviii, 501.

theory that pellagra is caused by "photodynamic substances."[2] Symptoms referable to the gastro-intestinal tract and nervousness frequently preceded the attacks for weeks or even months.

Among the possible causes of the disease — some of them given much credit in previous investigations — social and economic conditions, density of population, presence of silicates and absence of lime salts in the water (Alessandrini),[3] a deficiency of proteins in the diet, as regards both quantity and quality, and an excess of carbohydrates,[4] seem not to have been active. The social and economic conditions of the areas afflicted with pellagra are not inferior to those of certain areas not so afflicted. The water contains lime, and is used indiscriminately by both pellagrins and normal citizens. A careful study was made of the diet of the pellagrins. Accepting the conclusions of Chittenden[5] and McCay[6] that 40 gm. of protein a day are sufficient to sustain life, the investigators found that 66.8 per cent. of 421 pellagrins were consuming considerably more than this amount daily. From the standpoint of quality, also, the protein diet seemed to be reasonably varied; moreover, the height and development of patients compared favorably with the height and development of normal persons; and men with the same diet as women, with probably greater protein requirements than women, were yet less susceptible to the disease. Vitamin-containing substances[7] likewise were being obtained in the form of potatoes, milk, butter, fruit, etc. That there was an excess of carbohydrates in the diet of these people was evident, but "it is gradually being supplanted to such a degree in many pellagrous families by wheat flour that it can hardly be considered an etiologic factor."

The significant localization of this disease in certain areas of the city, and the fact that the social and economic conditions in these areas were the same as in other areas not subject to pellagra, pointed directly to the one factor of difference — the method of sewage disposal — as having an etiologic relation to the disease. Pellagra was largely confined to the unsewered areas of the city, and of those pellagrins who lived elsewhere, the majority had developed the disease while living in an unsewered neighborhood or on the edge of an unsewered area, or had been in the habit of visiting friends and relatives in an unsewered area. The sanitary conditions in the unsewered sections of the city were of the worst. In an area of a square mile in which pellagra and typhoid were most prevalent were found 1,500 privies, rarely cleaned and almost never enclosed so as to prevent the entrance of flies. These privies were located seldom more than 50 feet and frequently not more than 15 or 20 feet from the kitchens of the houses. Two per cent. of the kitchens were screened. Another significant fact brought out in the survey was that 78.8 per cent. of the patients had been in intimate contact with other pellagrins before they themselves had developed the disease. Finally, the installation of sewers in certain areas was followed by a decrease in the number of cases of pellagra originating therein, and the isolation of cases in certain institutions in which pellagra had made its appearance seemed to prevent further spread of the disease.

The results here outlined are highly interesting indeed, and will exercise much influence on investigation of the problem of pellagra, because they indicate that factors other than deficiencies in diet are concerned.

2. Raubitschek: Wien. klin. Wchnschr., 1910, xxiii, 23.
3. Alessandrini: Ann. d'ig., 1914, xxiv, 1.
4. Goldberger, Joseph; Waring, C. H., and Willets, D. G.: The Prevention of Pellagra, Pub. Health Rep., Oct. 22, 1915, p. 3117. Siler, J. F.; Garrison, P. E., and MacNeal, W. J.: A Statistical Study of the Relation of Pellagra to Use of Certain Foods and to Location of Domicile in Six Selected Communities, Arch. Int. Med., September, 1914, p. 293.
5. Chittenden: Physiological Economy in Nutrition, 1904.
6. McCay: Scientific Memoirs, New Series, Medical and Sanitary Department, India, 1908, p. 34.
7. Funk: München med. Wchnschr., 1914, lxi, 698.

SCIENCE AND PRACTICAL COMMON SENSE

Almost every one who is engaged in scientific work is certain sooner or later to find the impression, among people at large and even among some practitioners of medicine, that there is something unpractical and visionary about so-called scientific knowledge. This sentiment crops out in various ways. Sometimes it represents "the survival of the idea long held that science is a kind of hobby, chiefly for the men who pursue it; that while it may throw light on the abstruse problems of the universe it is not to be the guide of the practical man, and that its adherents are impractical." It is from such a view that the feeling of a sort of antagonism between science and what is called "common sense" derives its origin. Reference is sometimes made to "sound practice" as if it were something quite independent of scientific principles, or even superior to them. Another somewhat prevalent conception confuses science with theory, whereby the term "scientific" is regarded as synonymous with theoretical.

In a recent discussion[1] of these prevalent tendencies of opinion, it has been pertinently remarked that although theory and hypothesis aid in the development of scientific knowledge, pure theory is not science, nor is science mere theory. We wish that this might be more widely appreciated, for it would spare scientific workers from much undeserved criticism. Any one who will take the pains to review the history of experience in any field of endeavor can easily convince himself how little of permanence there is in many of the vaunted "common sense" plans, theories or procedures. The history of medicine or agriculture, for example, readily furnishes instances of the complete abandonment of "practical" methods discredited by scientific investigation.

1. Science and Common Sense, editorial, Exper. Sta. Rec., 1916, xxxiv, 401.

Though the claims of science for wider recognition in the everyday world are becoming more readily accepted, there is much inherited prejudice or temperamental inertia still to be overcome before the omnipresent "busy practical man" will permit the development of an inquiry attitude, a desire to understand. Has it not been said that "long-continued practice solidifies opinion and makes it impregnable to evidence, and that we come at length to substitute habit for reason?" Let us understand clearly, then, what are the real claims of science. The first aim of any genuine work of science, however popular, says Karl Pearson,[2] ought to be the presentation of such a classification of facts that the reader's mind is irresistibly led to acknowledge a logical sequence — a law which appeals to the reason before it captivates the imagination. Let us be quite sure that whenever we come across a conclusion in a scientific work which does not flow from the classification of facts, or which is not directly stated by the author to be an assumption, we are dealing with bad science. Good science will always be intelligible to the logically trained mind, if that mind can read and translate the language in which science is written. The scientific method is one and the same in all branches, and that method is the method of all logically trained minds.

What shall be said of the supposed "practical" competitors of the scientific spirit and the consequences which it portends? The editorial to which reference has already been made[1] deserves to be quoted because of its lucid exposition of the fundamental fallacies in some of the current reactionary ideas. Common sense, whether of high or low degree, it says, is in effect a product of reason and judgment applied to the facts and conditions as they are seen. It rests on information and its interpretation. So does science. There is some very bad common sense, as there may be bad science. Scientific facts are derived more accurately than personal impressions, by providing conditions which tend to guard against error or misconstruction. Because the facts developed by scientific methods are accurate, dependable, unprejudiced, and not influenced by purely local conditions, they furnish a safe basis for intelligent reasoning along either practical or scientific lines. The scientific method of deduction is more cautious and more restricted in its generalizations than personal judgment may be, but so far as it goes there is nothing antagonistic in it to good common sense. The substitution of facts derived in a manner to make them thoroughly reliable, in the place of current notions, traditions and observations, instead of detracting from the practical value and reliability of personal judgment, strengthens it and makes it a safer basis for action. There is no reason why the practical man's judgment should not be based on the best and safest sources of information available, and this is exactly what is taking place, whether it is fully realized or not. As a matter of fact, science is becoming more and more an aid to sane and practical judgment in all affairs. The more science furnishes the means for intelligent understanding and this understanding becomes disseminated among the people, the more common and reliable may "common sense" be, and the further will it be removed from the elements of mysticism, superstition and dogma. Confidence in it will not suffer by reason of this change, for it will then rest on intelligence in the things that actually are, combined with sound judgment and clear thinking.

2. Pearson, Karl: The Grammar of Science, London, 1900, p. 10.

RECENT NECROPSY RECORDS IN THE UNITED STATES

There is evidence that the publicity in respect to the discrepancies between antemortem diagnoses and necropsy findings in the United States, together with the propaganda for more postmortem examinations in hospitals and elsewhere, is beginning to produce a long desired improvement in the situation. Statistics gathered only a few years ago by competent investigators showed that the ratio of necropsies to deaths ranged above 25 per cent. in only four of seventeen large hospitals in this country.[1] Among the institutions surveyed by the committee of the New York Academy of Medicine, the two in America showing the highest percentage of necropsies to deaths were the Johns Hopkins Hospital of Baltimore, with a record of 62.7 per cent., and the Royal Victoria Hospital of Montreal, with a ratio of 67.6 per cent. These figures have been contrasted with the decidedly higher postmortem statistics from European public hospitals of similar status.

The desirability of checking diagnoses and the results of operative procedures by the necropsy findings needs only to be stated to most thoughtful practitioners in order to be appreciated. In pointing out the value of the necropsy as a public service, Wilson[2] of the Mayo Clinic has remarked that some physicians entirely lack an interest in necropsies because they are not interested in accurate vital statistics and in problems of heredity in disease, or because they do not appreciate the value of the necropsy in the correction of errors of diagnosis. Possibly some also hesitate, as Wilson remarks, to bring their diagnoses or operative procedures to the test of publicity in the necropsy. Furthermore, he contends that most intelligent laymen will respond to the argument that they ought to know the weaknesses of the members of their own families, but this argument is frequently omitted or subordinated by the physician proposing that a necropsy be made. Usually necropsies are asked for as a favor to the physician and rarely offered as a favor to the relatives.

1. Report of Public Health, Hospital and Budget Committee, New York Academy of Medicine, The Journal A. M. A., June 7, 1913, p. 1784.

2. Wilson, L. B.: The Necropsy as a Public Service, The Journal A. M. A., May 8, 1915, p. 1560.

The continued awakening in the matter of necropsies is indicated by some new statistics called forth by an editorial comment[3] in the *Modern Hospital* stating that one hospital in America had been successful in obtaining permission for postmortem examination in 58.5 per cent. of the patients dying there. The director of the Pathologic Institute of the Cincinnati General Hospital, Dr. Paul G. Wooley,[4] now reports that between June 1 and Dec. 31, 1915, 293 necropsies were held from a total of 465 cases—a percentage of 63. This improvement is ascribed in part to better cooperation between the undertakers and representatives of the institute staff. The value of the better opportunities for the intensive study of clinical cases from the anatomic standpoint is stated to be demonstrated already. For the Robert B. Brigham Hospital of Boston, Dr. F. H. McCrudden[5] likewise reports that since its opening, April 1, 1914, complete necropsies have been carried out on 70 per cent. of all those dying, that is, thirty-five necropsies for fifty deaths. We shall look forward to a succession of advances over even these greatly improved records. That this is not impossible of achievement is suggested by the reports of the Mayo Clinic.[2] Under the more favorable conditions developed there, 512 necropsies in 626 deaths, or 81.8 per cent., were made during the triennial period 1910-1912; in 1913 they represented 84.4 per cent. of 269 deaths; in 1914, 88 per cent. out of 293; while in the early months of 1915 there were 73 necropsies for 73 deaths — a remarkable record of achievement in the face of the existing obstacles.

3. Autopsies Increase in Number, editorial, Mod. Hosp., 1916, vi, 187.

4. Wooley, P. G.: Some Good Autopsy Figures, Mod. Hosp., 1916, vi, 377.

5. McCrudden, F. H.: More Good Autopsy Figures, Mod. Hosp., 1916, vi, 376.

Current Comment

THE BABY'S CHANCE FOR LIFE

"No community with an infant mortality rate of over 50 can claim that its babies are getting anything like a square deal." This statement accompanies a statistical bulletin and chart recently sent out by the New York Milk Committee, showing infant mortality rates in a large number of cities in the United States. The committee sent a questionnaire to the health officers of 252 cities. Of these, 108 either furnished no information or were unable to furnish any that was reliable. The statistics obtained from the 144 cities that furnished information are embodied in the committee's bulletin. According to these figures, only four of the 144 cities are giving babies "a square deal." These cities, with their infant death rates, are La Crosse, Wis. (30.6); Ogden, Utah (39.8); Omaha, (47.1), and East Orange, N. J. (48.8). The highest infant death rate in the whole series is that of Passaic, N. J. (193.5), but in this "bad eminence" Passaic is closely rivaled by Montgomery, Ala. (185.1), Nashville, Tenn. (182.3), and Perth Amboy, N. J. (176.6). No city with a population of 200,000 or over has an infant death rate as large as those just mentioned, but not one of them has the "square deal" rate of 50, and few even approach this limit. The lowest rates among cities of this class are those of Seattle, Wash. (53.1) and Portland, Ore. (57.7). The highest are those of Jersey City, N. J. (132.9) and Indianapolis (131.6). To quote the bulletin: "Of the cities with a population of 100,000 or more, a baby born in Omaha was found to have four times as good a chance to live to celebrate the first anniversary of its birth as a baby born in Nashville, Tenn., or Fall River, Mass. In the cities under 100,000 and over 50,000 population, a Salt Lake City baby has over three times the chance of surviving the first year of life that a Passaic, N. J., or Holyoke, Mass., baby has; while in cities between 25,000 and 50,000 population a La Crosse, Wis., baby has an advantage more than six to one over a Montgomery, Ala., or Perth Amboy, N. J., baby." The conditions that cause these high rates may be remedied by any community that is determined not to tolerate this waste of infant life. For instance, of the 6,900 infant deaths that occurred last year in the Borough of Manhattan, New York, alone, over half—at least 3,500—may be classed as preventable if the New York Milk Committee's rate of 50 be accepted as normal. If only six babies in the Borough of Manhattan were to be killed or even threatened with death by a bomb from an aeroplane, the country would be aflame with indignation. An observer from Mars might find this phenomenon curious when placed by the side of the calm unconcern with which we regard conditions that doom to death thousands on thousands of infants in this country.

TUITION FEES AND THE COST OF TEACHING MEDICINE

The rapid increase in medical knowledge during the last quarter of a century has led to the complete reorganization which methods of teaching medicine have undergone in recent years. This reorganization required the establishing by each school of special laboratories equipped with expensive and technical apparatus, and the payment of fair salaries to full time skilled teachers. Instead of generous profits to the proprietors of medical schools, which was the case only a short time ago, the adequate maintenance of a medical school at present requires the expenditure of more money than can be obtained from even the most exorbitant tuition fees. As shown in a report published recently,[1] the total expenditure for teaching in eighty-two medical colleges from which reports were obtained was about five and a half million dollars, as compared with less than two million dollars obtained from tuition fees. In other words, the average cost of teaching each student enrolled in the eighty-two colleges reporting was $419, as compared with $150, the average amount received from each student in tuition fees. Notwithstanding this greatly increased expenditure, tuition fees have been only moderately

1. Finances of Medical Schools, THE JOURNAL A. M. A., April 8, 1916, p. 1115.

increased. The average tuition fee in all existing colleges is about $145, as compared with $109, the average fee charged by the same colleges fifteen years ago. Tuition fees have been advanced by only about 25 per cent. in the last fifteen years, therefore, although the cost of teaching has been advanced from the point at which students' fees permitted a profit, to the present situation where it exceeds the income from students' fees by 280 per cent. This excess in expenditures has, of course, been met by state appropriations or by private gifts and endowments which, meanwhile, have not been obtained by the small and rapidly diminishing number of medical colleges still conducted for the direct benefit of their owners. Such aid has invariably been furnished to the medical colleges which were worthy of it — colleges which were furnishing the best medical training possible with the funds at their disposal.

HIGHER TUITION, SCHOLARSHIPS AND NEEDY STUDENTS

The increased tuition fees, referred to in the preceding comment, have caused the publication of occasional statements expressing concern lest a medical education hereafter will be available only to wealthy students. There is still no occasion to feel alarmed, however, regarding opportunities for deserving but needy students to enter on the study of medicine. In a previous comment,[1] attention was called to opportunities for such students to work their way through the medical school in whole or in part. It was shown that as a rule the majority of such students were found in the higher grade and better equipped medical schools, and that the best opportunities for student service were found in such colleges. In a later comment[2] it was stated that the attempt to earn all expenses while doing justice to the exacting work of the medical course meant a strain which few could endure, and that the solution of the problem of the "poor boy" lay in free scholarships to be awarded to good students of limited means. It was shown that 170 such scholarships had already been provided and that others were being added. A report on another page[3] shows that at the present time scholarships and loan funds have been established in forty-eight medical colleges for the use of students who are without means otherwise to procure a medical education. Altogether 296 free scholarships are now available, 116 more than were reported a year ago. The increase in the number of scholarships, therefore, has been far greater than the increase in tuition fees. It is a fact that students with limited finances frequently do better both in their studies and in their subsequent practice than some who have had ample funds at their disposal. In this democracy the way must be kept open so that every deserving student, regardless of his financial condition, may find a ready and welcome entry to the practice of medicine.

1. The Poor Boy and Medical Education, Current Comment, THE JOURNAL A. M. A., Jan. 28, 1911, p. 275.
2. Scholarships in Medical Education and the "Poor Boy," Current Comment, THE JOURNAL A. M. A., Feb. 13, 1915, p. 597.
3. Scholarships and Loan Funds in Medical Schools, THE JOURNAL A. M. A., this issue, p. 1735.

THE FALLIBILITY OF DRUG THERAPY IN TEXTBOOKS

Until very recently, we were compelled to acknowledge that little if any progress was being made in internal medicine so far as drug therapy was concerned. Everybody knows of the progress made in other branches—in bacteriology, in pathology, in biologic chemistry, in surgery, in etiology and in the application of technical methods to diagnosis. Recently, however, pharmacologic research and the application of scientific methods in the study of the physiologic action of drugs are resulting in definite, positive progress. An important lesson, incidentally learned through this scientific investigation, is the fallibility of the drug therapy described in textbooks. The explanation is, of course, that many of these textbooks are mere compilations containing false statements, unproved theories, and unverified clinical evidence representing the guesswork of ancient uncritical observers. Many drugs have been, and still are, vaunted in textbooks as valuable in a variety of conditions, whereas scientific investigation and controlled clinical observation have proved them to be totally worthless; others are proving to be of value in an extremely limited number of conditions. The sooner writers of textbooks realize this fact and enter into the spirit of the new era, the better for the public and for scientific medicine.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

New Attorney for the State Medical Board.—John W. Hart, Los Angeles, has succeeded Mr. Ray Nimmo, resigned, as attorney for the State Medical Board.

Personal.—Dr. Cornelius Van Zwaluwenburg, president of the Riverside Chamber of Commerce, fell down stairs at the Riverside City Hospital, fracturing his right femur.——Dr. William Palmer Lucas, San Francisco, professor of pediatrics in the University of California Medical School, has gone to Europe to aid in the organization of children's work for the American Commission for Relief in Belgium.——Dr. Hardolph Wasteneys has been appointed associate professor of pharmacology in the new department of biochemistry in the University of California Medical School.

Medico-Military Preparedness.—May 18, the scientific program of the Los Angeles County Medical Association was devoted to a symposium on "Military Medicine." Lieut.-Col. William E. Purviance, M. C., U. S. Army (retired), Los Angeles, delivered an address on "Medical-Military Preparedness"; Lieut. John J. Kyle, M. R. C., U. S. Army, Los Angeles, major surgeon of the One Hundred and Sixtieth Indiana Infantry, U. S. V., during the war with Spain, spoke on "The Making of a Medical Officer"; Maj. Harlan Shoemaker, Los Angeles, formerly M. C., N. G. Pa., now captain, M. C., N. G. Calif., and first lieutenant, M. R. C., U. S. Army, read a paper on "The Medical Corps of Our Army as a Career—With Some Recent Scientific Achievements by the Regular Medical Corps," and Maj. Charles W. Decker, M. C., N. G. Calif., first lieutenant, M. R. C., U. S. Army, discussed "Sanitary Organization and Military Administration."

COLORADO

New Meeting Hall and Library for Society.—The committee on raising funds for the new meeting hall and library building of the Medical Society of the City and County of Denver, met for organization, April 26. Dr. William H.

Crisp was elected secretary of the committee and Dr. Walter A. Jayne, treasurer. The week from May 21 to 27 was designated as the time in which an active personal canvass of each member will be made. The society is endeavoring to raise $500,000 for this purpose.

Personal.—Dr. Clarence D. Ussher, for eighteen years a medical missionary of the American Board at Van, Turkey, delivered an address at the Congregational Church of Colorado City, May 10.——Dr. Richard W. Corwin, chief surgeon of the Colorado Fuel and Iron Company, Pueblo, sailed for Europe, May 14, to inspect hospital methods in France and other European nations.——Dr. Raynor E. Holmes, Canon City, has been appointed physician at the State Penitentiary, succeeding Dr. Hart Goodloe.——Dr. Charles A. Powers, Denver, sailed for France, April 8, on the *Chicago*, to work in the American Ambulance, Paris.

FLORIDA

Health Train at Tampa.—The educational exhibit train of the state board of health visited Tampa, May 20 to 22.

Sanatorium Transferred.—The De Soto Sanatorium property, Jacksonville, which was purchased by the Sisters of Charity of Emmitsburg, Md., for $67,000, was transferred to the Sisters, May 1. The staff of the institution remains the same, with Dr. John E. Boyd, Jacksonville, as chief of staff.

New Officers for State Association.—The forty-third annual meeting of the Florida Medical Association was held in Arcadia, May 10 to 12, under the presidency of Dr. Robert H. McGinnis, Jacksonville. The following officers were elected: president, Dr. Edmund W. Warren, Palatka; vice presidents, Drs. John A. Simmons, Arcadia; E. Van Hood, Ocala, and John P. Long, Lake City; secretary-treasurer, Dr. Graham E. Henson, Jacksonville (reelected); delegate to the American Medical Association, Dr. John MacDairmid, Deland, and alternate, Dr. Frederick J. Walter, Daytona. Atlantic Beach was selected as the next place of meeting.

ILLINOIS

Foot and Mouth Disease Breaks Out Again.—A new outbreak of foot and mouth disease is reported in Christian County after a period of three months of immunity, and the Federal Bureau of Animal Industry has placed the county under quarantine.

Personal.—Dr. Edward H. Harton, director of the bacteriologic department of the Tri-Cities Hygienic Institute, LaSalle, has resigned to accept a position as bacteriologist in the Northwestern University Dental College, Chicago.——Dr. J. George Vaughan, Aurora, a medical missionary in Nanchang, China, for the last seven years, is now on a furlough in America.——Dr. Clarence W. East, Evanston, has been appointed district health officer for the northeast section of the state.——Dr. Edmund J. Burke, LaSalle, is reported to be ill with scarlet fever.

State Society Meeting.—At the sixty-sixth annual meeting of the Illinois State Medical Society, held in Champaign, May 16 to 18, Dr. William L. Noble, Chicago, president-elect, assumed the office of president and the following officers were elected: president-elect, Dr. Elmer B. Cooley, Danville; vice presidents, Drs. Cyrus F. Newcomb, Champaign, and Robert A. McClelland, Yorkville; secretary, Dr. Wilbur H. Gilmore, Mt. Vernon (reelected), and treasurer, Dr. A. J. Markley, Belvidere (reelected); councilors, fourth district, Dr. August H. Arp, Moline; fifth district, Dr. Charles S. Nelson, Springfield; seventh district, Dr. Charles F. Burkhardt, Effingham; eighth district, Dr. Cyrus E. Price, Robinson (unexpired term); delegates to the American Medical Association, Drs. Thomas O. Freeman, Mattoon; Charles W. Lillie, East St. Louis; Robert S. Denney, Aurora, and Alexander M. Harvey, Hugh N. MacKechnie and Jacob C. Krafft, Chicago; alternates, Drs. Alban L. Mann, Elgin; Frank C. Sibley, Carmi; William D. Chapman, Silvis, and Hugo E. Betz, Duncan R. MacMartin and Henry F. Lewis, Chicago. Bloomington was selected as the next place of meeting, and the date of the meeting was fixed at May 15 to 17. The oration in surgery was delivered by Dr. B. Merrill Ricketts, Cincinnati, who spoke on "Anesthesia From the Dawn and Its Relation to Surgery"; and that in medicine by Lieut.- Col. William B. Bannister, M. C., U. S. Army, Chicago, whose subject was "The Medical Mechanism of War in the United States." A committee was appointed consisting of Drs. John M. Lavin, P. J. H. Farrell and Charles C. O'Byrne, Chicago, to perfect plans for recruiting members of the profession for the preparedness parade in Chicago, June 3. The House of Delegates heartily endorsed the general movement for national preparedness.

Chicago

Presentation to Dr. Coon.—Patients of the Municipal Tuberculosis Sanatorium, May 14, presented Dr. John W. Coon with a written address of appreciation and an elaborate desk and filing cabinet system.

Expensive Epidemic.—Four scarlet fever epidemics at the University of Chicago this year are said to have cost the school $1,200, including the sums refunded to women students for rooms in campus dormitories and board.

Meeting of Internists.—The twelfth regular meeting of the Chicago Society for Internal Medicine was held, May 22. The program included papers by Drs. Charles A. Elliott and Walter H. Nadler on "The Effect of Castration on Osteomalacia in the Male"; by Drs. R. G. Hoskins and W. E. Morse on "The Effect of Acid on Gastric Discharge"; by Drs. Ernest E. Irons and P. J. Murphy, on "The Incidence of Localized Infection in Patients With and Without Apparent Metastatic Lesions," and by Dr. Ethan Allan Gray on "Intestinal Perforation in a Case of Pulmonary Tuberculosis."

INDIANA

Physicians Win Suit.—In the suit brought against Drs. George E. Lowe and Robert O. Alexander, by Mrs. Laura E. Karnes, in which damages of $25,000 were asked on account of alleged malpractice, the judge instructed the jury to find for the physicians.

Pasteurization Favored.—The State Conference of Health Officers was held recently in Indianapolis and passed resolutions favoring the pasteurization of milk, recommending to the legislature that whole-time health officers should be appointed and a better system of school inspection initiated.

Hospital Improvements.—The hospital building of the Odd Fellows' Home at Greensburg is to be improved by a two-story addition to cost about $25,000.——The contract has been awarded for the construction of the Tuberculosis Hospital for Marion County, for $55,183. The building will be erected in the suburbs of Indianapolis.

The Newcastle Clinic.—Seven physicians of Newcastle have formed a cooperative organization known as the Clinic and are erecting a building to be devoted to pathologic, bacteriologic and chemical laboratories, operating, Roentgen ray and consultation rooms. The members of the association are Drs. Julius E. Hiatt, D. S. Wiggins, Herman W. MacDonald, Edson K. Westhafer, Clyde C. Bitler, George H. Smith and G. A. Hiatt.

Milk Standard Raised.—The standard of milk has been raised in Indianapolis by a new city ordinance which requires the pasteurization and clarification of all milk sold in the city that does not have a bacterial count of less than 50,000 bacteria to the cubic centimeter. This is regarded by the board of health as the greatest victory won by the medical profession of the city for many years. The ordinance further requires the registration of all milk dealers with the board of health, giving the board authority to enforce sanitary regulations and to inspect all dairies where milk is produced for sale.

KENTUCKY

Vance Memorial.—May 15, the formal exercises were held at the Children's Free Hospital, Louisville, in memory of Dr. Ap Morgan Vance at which the Vance Memorial Ward was presented to the hospital, and a tablet, inscribed with the names of those who contributed to the fund for the equipment, was presented. Dr. Lewis S. McMurty made the principal address.

Louisville Antituberculosis Association.—At the annual meeting of this organization, which operates the Hazelwood Sanatorium, April 10, it was announced that the sanatorium is now under the supervision of the Medical Advisory Board, of which Dr. Cuthbert Thompson has been the chairman since the death of Dr. Ap Morgan Vance. Dr. Benjamin C. Frazier is vice chairman, and Dr. Oscar O. Miller, corresponding secretary and physician in charge.

Railway Surgeons Hold Meeting.—The twelfth annual session of the Kentucky State Association of Railway Surgeons was held in Louisville, May 11 and 12, under the presidency of Dr. Henry C. Jasper, Richmond, and the following officers were elected: president, Dr. Madison E. Alderson, Russellville; vice presidents, Drs. John Striegler, Elizabethtown; R. Lee Bird, Covington, and secretary-treasurer, Dr. Clarence

H. Vaught, Richmond. Dr. Joseph C. Bloodgood, Baltimore, read a paper on "Standardization of First Aid Packages."

Personal.—Dr. Archibald Dixon, Henderson, has been appointed a member of the State Tuberculosis Commission. ——Dr. Albert F. Cornelius, Hazard, a member of the American Sanitary Commission to Serbia, returned from Serbia, April 27, on the Cunard steamer *Orduna*.——Dr. Ralph Holt, Kevil, has been elected physician of McCracken County, succeeding Dr. Clifford E. Harkey, Paducah.——Dr. Hervey S. Keller, Frankfort, has resigned as a member of the Kentucky Tuberculosis Commission.——Dr. William T. Willis, Mt. Sterling, has been appointed chief medical director of the Inter-Southern Life Insurance Company, Louisville, and will move to that city.

MARYLAND

Funds for Contagious Wards.—A campaign to raise $30,000 to provide contagious wards at the Harriet Lane Home for Invalid Children at the Johns Hopkins Hospital has been begun. The home is asking for $10,000 a year for three years, the sum required to maintain its two wards for these diseases.

Weekly Health Bulletins.—Dr. John D. Blake, health commissioner, has been requested by the mayor to furnish a weekly bulletin outlining health conditions in Baltimore, and recommending how they should be handled. It is intended that the bulletin be a guide to the public for the maintenance of health conditions in the city.

Personal.—Dr. Frederick Williams has been appointed health warden for the Fourth Ward of Baltimore, succeeding Dr. John F. Byrne, resigned.——Drs. John K. Ormond, Frederick H. Haessler and David R. Murchison have been appointed members of the staff of the Ford Hospital, Detroit, and will assume their duties, July 1, and Dr. Russell H. Hayden, Baltimore, also appointed, will begin his service on September 1.

Sanitary Campaign.—Surg.-Gen. Rupert Blue, U. S. P. H. S., and a delegation of municipal officers and business men inspected the hospital and grounds at Quarantine, May 16, preparatory to turning the station over to the federal government. In the evening, General Blue and Dr. Lewellys F. Barker, Baltimore, spoke at a public meeting in the Auditorium Theater at which the sanitary campaign of the mayor was launched.

Noted Chemist Dies.—Harry Clary Jones, professor of physical chemistry in Johns Hopkins University since 1904, and a member of the faculty of that institution for twenty-one years; a recognized authority on physical chemistry; a member of many learned societies; editor of and contributor to numerous scientific journals; author of "The Modern Theory of Solutions," and "The Freezing Point, Boiling Point and Conductivity Methods"; translator into English of many chemical works; Langstreth medalist of Franklin Institute in 1913; died at his home in Baltimore, April 9, from cerebral hemorrhage, aged 50.

MISSISSIPPI

State Medical Meeting.—The annual meeting of the Mississippi State Medical Association was held in Greenville, May 9 to 11, under the presidency of Dr. Inman W. Cooper, Newton. The following officers were elected: president, Dr. Thomas M. Dye, Clarksdale; vice presidents, Drs. Thomas W. Reagan, Union; Richard C. Smith, Dwiggins, and Robert A. Strong, Pass Christian; councilors, first district, Dr. Lancelot L. Minor, Hollywood, succeeding Dr. Dye, elected president; fifth district, Dr. Sam J. Hooper, Kosciusko, and sixth district, Dr. Sydney W. Johnston, Vicksburg; delegate to the American Medical Association, Dr. Inman W. Cooper, Newton. The annual oration was delivered, May 9, by Dr. E. Denegre Martin, New Orleans. At the public meeting a loving cup was presented to Dr. Carroll Kendrick, Kendrick, the presentation speech being made by Dr. James W. Lipscomb, Columbus. Jackson was decided on as the meeting place for 1917.

NEW HAMPSHIRE

New State Officers.—The one hundred and twenty-fifth annual meeting of the New Hampshire Medical Society was held in Concord, May 16, under the presidency of Dr. Edgar O. Crossman, Lisbon. After the president's address at the banquet in the evening, Dr. David Cheever, Boston, gave an illustrated talk on his experiences with a Harvard Unit in the European war zone; and Dr. Frederick C. Shattuck, Boston, spoke on "The Modern Advances of Medicine." The following officers were elected: president, Dr. Emdon Fritz, Manchester; vice president, Dr. Fred S. Towle, Portsmouth; secretary, Dr. Dennis E. Sullivan, Concord (reelected); treasurer, Dr. David M. Currier, Newport, and delegates to the American Medical Association, Drs. Walter T. Crosby, Manchester, and Charles W. Hannaford, Portsmouth.

NEW YORK

Personal.—Drs. John H. Wild, Charles Leone, Leon S. Kurek and Herbert H. Bauckus have been appointed city physicians of Buffalo.

Laboratory Facilities of the Department.—The state department of health calls attention to the fact that adequate laboratory facilities are now available for the examination of specimens for diagnosis, especially of diphtheria, tuberculosis and typhoid fever. Physicians throughout the state are urged to take advantage of these facilities.

Warning to Physicians.—Asserting that more than one half of the cases of tuberculosis and nearly three fourths of the cases of typhoid fever are not being reported, Health Commissioner Biggs has sent a circular letter to all the physicians of the state warning them that continued laxity in this regard will result in prosecution under the public health law.

Women's Medical Society.—This society held its tenth annual meeting at Saratoga Springs, May 16, and elected the following officers: president, Dr. Eveline P. Ballintine, Rochester; vice presidents, Drs. Edith R. Hatch, Buffalo; Grace N. Kimball, Poughkeepsie, and Beatrice M. Hinkle, New York; secretary, Dr. Ethel Doty Brown, New York, and treasurer, Dr. Phoebe M. B. VanVoast, New York.

Trudeau Tuberculosis School Opens.—This postgraduate school for medical men who are specializing in tuberculosis was formally opened at Saranac Lake, May 17. Among the speakers on this occasion were Dr. William H. Welch, Baltimore; Dr. Hermann M. Biggs, New York; Dr. Walter B. James, New York, and Dr. Edward R. Baldwin, Saranac Lake. The school is a memorial to Dr. Edward Livingston Trudeau, and thus far $500,000 has been subscribed toward its support. This fund is to be known as the Edward L. Trudeau foundation.

Social Insurance Inquiry.—Under the auspices of the Committee on Insurance of the New York Chamber of Commerce, arrangements are being perfected for a comprehensive investigation into all essential phases of the subject of social insurance, between this and the next meeting of the New York legislature, with special regard to health insurance. Dr. J. F. Crowell, executive officer of the chamber of commerce, to whom communications may be addressed, will have charge of the inquiry. This inquiry will extend not only to the actual developments in countries where health insurance has made some progress, but will also include a critical examination of the conditions, causes and effects of the different systems with a view to their availability for American communities. It is intended to test the claims which existing systems made at the time of their origin in the light of results.

Bills Vetoed.—Governor Whitman has vetoed the bill known as the Elon R. Brown bill which was amended in the legislature to meet the views of those who were endeavoring to prevent the pollution of the city's water supply by the sewage of the Mohansic State Hospital and the New York State Training School for Boys. The governor states that he vetoed the bill because it fell far short of properly safeguarding and protecting the lives of the citizens of the state of New York. It seems that there was nothing in the bill to prevent the commission selecting new sites for the institutions which are considered objectionable within the same watershed. He also disapproved the plans and specifications for the new Mohansic State Hospital and the Boys' Training School which will prevent the starting of work on that institution until the legislature provides for the abandonment of these projects. He has also vetoed the Simpson bill which would have granted to public service commissions instead of to health boards the power to make an order directing the maximum number of passengers to be carried in street cars.

New York City

Fourth Base Hospital Unit.—A completely equipped base hospital of 500 beds has been presented to the New York County Chapter of the American Red Cross by Mr. and Mrs. George Blumenthal of this city. This unit will cost $24,000, and will be organized in connection with Mount Sinai Hospital. The staff will be recruited from the surgeons and nurses of the institution, and will consist of twenty surgeons, forty-six nurses and 125 orderlies. Mobilization plans of the

three units already organized are complete and the units are ready for service, either in the field in time of war or in the case of extreme emergency at the scene of a great disaster.

NORTH DAKOTA

Hospital Items.—The seventh day adventists of Harvey have secured control of the Harvey Hospital by the purchase of the majority of the capital stock.——Col. Alexander Scarlett, Minot, has deposited $250 for the benefit of the building fund of the new Catholic Hospital in Minot, subject to the receipt of ninety-nine subscriptions of similar amount before July 4.

State Society Meetings.—The North Dakota State Medical Association held its twenty-ninth annual meeting at Devils Lake, May 9 to 11, under the presidency of Dr. Victor H. Stickney, Dickinson. New Rockford was selected as the place of meeting for 1917, and the following officers were elected: president, Dr. Victor J. LaRose, Bismarck; vice presidents, Drs. George M. Williamson, Grand Forks; Edgar A. Pray, Valley City, and William A. Gerrish, Jamestown; secretary, Dr. Hezekiah J. Rowe, Casselton (reelected), and treasurer, Dr. William F. Sihler, Devils Lake (reelected). The annual banquet was held at the Great Northern Hotel on the evening of May 10.

OREGON

Meeting of Southern Oregon Physicians.—The annual meeting of the Southern Oregon Medical Association was held in Roseburg, May 9. Grants Pass was selected as the next place of meeting and Dr. Frederick D. Stricker, Grants Pass, was elected president; Dr. Victor L. Rocho, Yoncalla, vice president, and Dr. Alvane C. Seely, Roseburg, secretary-treasurer.

Personal.—Dr. Ralph Charles Matson, Portland, will be a member of the staff of the research laboratory conducted by Col. Sir Almroth E. Wright, consulting physician with the British Expeditionary Force at Bolougne. Dr. Matson left Portland, May 15, and sailed from New York for England five days later.——Dr. Urling C. Coe, Bend, has been appointed a member of the State Board of Medical Examiners, succeeding Dr. Henry L. Henderson, Astoria, term expired.

PENNSYLVANIA

Personal.—Dr. Edgar M. Parlett, Newcastle, has been appointed chief of the Bureau of Welfare of the Baltimore and Ohio Railroad with headquarters in Baltimore.——Dr. Evan O'Neill Kane of the Kane Summit Hospital returned from abroad on the *Finland*.——Dr. Clyde Brooks of the University of Pittsburgh has resigned to accept a position as head of the department of physiology, pharmacology and physiologic chemistry in the School of Medicine of the Ohio State University, Columbus.

Factory Surgeons' Conference.—The second conference of physicians and surgeons employed by the large industrial plants of the state was held in Harrisburg, May 18. Dr. Francis D. Patterson, Philadelphia, chief of the division of industrial hygiene and engineering, presided. The speakers at the morning session were Dr. Alfred Stengel, Surg. Joseph W. Schereschewsky, U. S. P. H. S., Frederick S. Crum, assistant statistician of the Prudential Insurance Company, and Dr. Elizabeth B. Bricker Lititz of the department of labor and industry. The speakers of the afternoon session were all surgeons and physicians employed by the industrial plants of the state.——It was announced that a clinic for the exclusive study of industrial and occupational diseases will be established in Philadelphia through the cooperation of Dr. Alfred Stengel, commissioner of labor and industry, Jackson, and Dr. Francis D. Patterson, chief of the division of industrial hygiene and engineering of the same department. This clinic with Dr. Stengel at its head will be opened at the University Hospital, Philadelphia, about June 1. An entire ward will be devoted to patients suffering from diseases presumed to be the result of their working conditions. Two physicians from the hospital and a score of social service workers will assist Dr. Stengel in his study of vocational diseases which medical experts declare have never been thoroughly investigated.

Philadelphia

Hospital Building to be Dedicated.—The Mitchell Memorial Building of the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, Seventeenth Street, north of Summer Street, will be formally dedicated, June 1.

Personal.—Dr. Malcolm C. Grow has returned after a prolonged service with the Russian army on the eastern war front.——Dr. Max M. Peet has been appointed instructor in the surgical department of the University of Michigan, Ann Arbor.

Clean Up Week.—May 18, Clean Up Week was officially opened by the parade of the street cleaning forces reviewed by the mayor and his cabinet. The street cleaning contractors are all required to have their full complement of men in the parade, and each year there has been a noticeable improvement in the equipment and efficiency of the forces.

Work Resumed.—Within a short time work will be resumed on the unfinished surgical wing of the Hospital of the University of Pennsylvania, on which work was stopped two years ago, when the board of managers ran out of funds to carry it on. Three floors are completed and friends have since been successful in raising funds to complete the walls of the fourth and fifth floors.

College Commencement.—The Ninety-First Annual Commencement of the Jefferson Medical College will be held, June 3, in the Academy of Music. Dr. William W. Keen, emeritus professor of surgery in Jefferson Medical College, and president of the American Philosophic Society, will deliver the valedictory address. His topic will be "The Doctor's Duty."

Free Baby Lectures.—A campaign for better health among mothers and babies, and those in any way connected with children, was inaugurated, May 18, by the Child Federation in the Widener Building. A store on the ground floor was obtained and daily talks were given to the public by physicians and health officials. In order to make the campaign a popular one, an orchestra was obtained and a concert given every day at 11:45 a. m. There was a course of ten lectures, the first being given by Dr. Joseph Neff, president of the federation and former director of health and charities. Among other speakers at these noon meetings were Dr. Judson Daland, May 19, and John M. Patterson, judge of the court of common pleas, May 20.

TENNESSEE

Funds for Galloway Hospital.—It is reported that the recent ten-day campaign in Nashville resulted in raising $270,000 for the completion of the Galloway Memorial Hospital, the teaching hospital of Vanderbilt University, Medical Department. This was $70,000 more than the sum contemplated.

State Board Meeting.—At the semiannual meeting of the state board of health held in Nashville, May 9, it was announced that arrangements had been made to secure five experts from the United States Public Health Service, working with a like number from the state department, to make a sanitary survey of Obion County.——It was also reported that a hospital would be established at a cost of $9,000 in the mountain district of East Tennessee for the treatment of trachoma.

Personal.—Senior Surg. Joseph H. White, U. S. P. H. S., in charge of the Marine Hospital, Memphis, delivered an address at the health exhibition, May 8, on "Malaria, the Malaria Mosquito and Preventive Measures." Dr. White has been detailed as director of the field campaign against malaria.——Dr. John R. Thompson, Nashville, has succeeded Dr. Blackburn G. Tucker, resigned, as full time health officer of Davidson County.——Dr. Reese Q. Lillard, Nashville, secretary of the state board of health, is making an official inspection of the water supply of Bristol and a sanitary survey of the town of Kingsport.

TEXAS

Personal.—Dr. Manton M. Carrick, Dallas, is having erected a public drinking fountain in memory of his mother, Mrs. Camie Howard, at Waxahachie.——Dr. Edgar W. Loomis has been appointed health officer of Dallas.

State College Alumni Organized.—An association of Dallas alumni of the University of Texas, Medical Department, was organized at Dallas, April 28, at which Dr. William C. Swain was elected chairman, and Dr. John M. Boyd, secretary.

Health Officers' School Opened.—The second annual course of instruction for health officers under the auspices of the University of Texas Medical Department, Galveston, began, May 12, under the charge of Dr. Burdett L. Arms, professor of preventive medicine. During the course the mornings are spent in clinical and laboratory work, the afternoons being devoted to lectures.

Quarantine Authority Defined.—The attorney general's department on May 10 made a ruling that in establishing a general quarantine in a county or a political division thereof, the county health officer shall be required to act under directions from the county commissioner's court, but that in isolated cases the county health officer may establish and maintain quarantine on his own initiative.

Texas Surgeons Elect.—At the annual election of the Texas Surgical Association held in Dallas, April 24 and 25, the following officers were elected: president, Dr. James E. Thompson, Galveston; vice presidents, Drs. Joseph H. Reuss, Cuero, and Frank Paschal, San Antonio; secretary, Dr. W. Burton Thorning, Houston; treasurer, Dr. John B. Smoot, Dallas, and recorder, Dr. Charles S. Venable, San Antonio.

County Secretaries Hold Meeting.—The annual meeting of the State Association of County Secretaries wes held in Galveston, May 11. An amendment was adopted changing the name of the association to the State Association of Medical Secretaries of Texas. Dr. Alfred W. Davisson, Corpus Christi, was elected president; Dr. Edgar F. Gough, Waxahachie, vice president, and Dr. H. Lawler Wilder, Glen Rose, was reelected secretary.

Health Survey.—Dr. Platt W. Covington of the International Health Commission, Dr. B. W. Collins of the State Health Department, Dr. Burdett L. Arms of the Medical Department of the University of Texas and Ernest Breihan have started a health survey of Leon County. It is being conducted in three districts, each containing about 10 square miles, and each family in the districts to be surveyed has expressed willingness to submit to treatment when cases of disease are found and to observe, as nearly as possible, the sanitary regulations prescribed.

Semicentennial of State Society.—At the fiftieth annual meeting of the State Medical Association of Texas, held in Galveston, May 9 to 11, under the presidency of Dr. George H. Moody, San Antonio, almost 800 delegates were present, and the following officers were elected: president, Dr. James M. Inge, Denton; president-elect, Dr. Edward H. Cary, Dallas; vice presidents, Drs. Robert Y. Lacy, Pittsburg; Charles R. Johnson, Gainesville, and William L. Brown, El Paso; secretary, Dr. Holman Taylor, Fort Worth (reelected); treasurer, Dr. Wilmer L. Allison, Fort Worth (reelected); chairman, board of trustees, Dr. John T. Moore, Houston (reelected); member, Council on Medical Defense, Dr. William A. King, San Antonio (reelected); councilor from third district, Dr. Charles R. Hartsook, Wichita Falls (reelected); councilor from fifth district, Dr. Charles S. Venable, San Antonio; councilor from sixth district, Dr. William N. Wardlow, Corpus Christi (reelected); councilor from twelfth district, Dr. Arthur C. Scott, Temple (reelected); councilor from fifteenth district, Dr. Charles E. Seale, Daingerfield; delegates to the American Medical Association, Drs. George H. Moody, San Antonio, and Marvin L. Graves, Galveston; alternates, Drs. Charles M. Rosser, Dallas, and Bacon Saunders, Fort Worth, and member of the Council on Legislation and Public Instruction, Dr. Ben H. Turner, Cleburne (reelected). Dr. Holman Taylor, Fort Worth, was also reelected editor of the *Texas State Medical Journal*. On the evening of May 9, memorial services were held in honor of the thirty-six members of the association who had died since the last meeting.

WISCONSIN

Y. W. C. A. Infirmary.—Dr and Mrs. Harold C. Bradley, Madison, have offered to build and completely equip three rooms to be used as an infirmary in the Young Women's Christian Association Building, Madison.

State Health Conference.—A conference of the field men of the state board of health was held in Madison, May 5 and 6, presided over by Dr. Guy W. Henika, deputy state health officer for the district, and Frank R. King, state plumbing inspector.

Postgraduate School Organized.—At a meeting of physicians of Marshfield, the Physicians Postgraduate School of Marshfield was organized, and the following officers were elected: president, Dr. Karl W. Doege; vice president, Dr. John C. Hayward; secretary, Dr. Victor A. Mason, and treasurer, Dr. William Hipke.

Personal.—Dr. John R. McDill, Milwaukee, has been selected as surgeon in chief of two field hospitals of 500 beds each, to be established in Germany and Austria, by the American Surgeons' Expeditionary Committee. Dr. McDill, with forty surgeons and nurses, sails from New York, May 27, on the *New Amsterdam*.——Dr. Albert F. Young, Wauwatosa, has resigned as house physician of the Milwaukee County Detention Home.——Dr. John J. McShane, health commissioner of Kenosha, has been appointed director of public health of Akron, Ohio.

State Surgeons Hold Meeting.—The annual meeting of the Wisconsin Surgical Association was held in Milwaukee, May 10 and 11, under the presidency of Dr. F. Gregory Connell, Oshkosh, and the following officers were elected: president, Dr. Charles H. Lemon, Milwaukee; vice presidents, Drs. Reginald H. Jackson, Madison; George W. Nott, Racine; Karl W. Doege, Marshfield, and Dennis J. Hayes, Milwaukee; secretary-treasurer, Dr. Daniel Hopkinson, Milwaukee, and member of the board of regents, Dr. John F. Pember, Janesville (reelected). At the close of the banquet a paper written by Major James R. Scott, M. C., Wis. N. G., Appleton, was read by Major James W. Frew, M. C., Wis. N. G., Milwaukee, assigned First Infantry, and this was followed by a discussion on the general topic of preparedness.

CANADA

Grenfell Speaks.—Dr. Wilfrid T. Grenfell, Labrador, recently returned from the battlefront in France, lectured in Convocation Hall, University of Toronto. He spoke of the work of the Red Cross, to which he paid a high tribute, as well as to the Canadian Army Medical Corps.

Hospital News.—The Massey-Harris Hospital at Kingswood, England, will be opened, June 1.——The Canadian Women's Club at Folkestone, England, is building and furnishing an assembly center for tuberculosis patients at Moore Barracks Hospital, England.——Lieut.-Col. John R. Spier, Westmount, Que., has been appointed head of No. 2 Canadian Hospital in France.

Personal.—Prof. Archibald B. Macallum of the University of Toronto has been elected president of the Royal Society of Canada.——Dr. W. Harley Smith, Toronto, writing to the Hon. Mr. Hanna from the Ontario Military Hospital at Orpington, England, says it just recently received its first quota of patients—two dozen cases of incipient tuberculosis contracted within the past six months.——Dr. Gordon J. Ferrier, Toronto, Ont., was reported dangerously wounded on Good Friday "somewhere in France."——Dr. Charles K. Clarke, superintendent of the Toronto General Hospital, has been elected president of a Toronto society to promote the interests of the feebleminded.

University News.—Every member of the graduating class of the medical department at the Western University, London, Ont., has offered his services to the militia authorities at Ottawa for immediate overseas service if required. There is a great shortage of young doctors in the field hospitals.—— The annual convocation of the Western University was held, May 18. Dr. William J. Roche, M.P., Minnedosa, Mann., new chancellor of the university, delivered an address on the aspirations of the institution. Dr. Edward A. Braithwaite, Edmonton, Alta., president of the university, outlined the progress made in the past year. The following members of the profession received the honorary degree of doctor of laws: Dr. Hugh A. McCallum, London, Ont.; Dr. Friend R. Eccles, and Dr. Walter H. Moorhouse. The honorary degree of doctor of science was conferred on Dr. Leonard G. Rowntree, professor of medicine in the University of Minnesota.——Speaking at the annual meeting of the Alumni Association of the University of Toronto, held last week, President Falconer stated that the war had taken over 2,500 graduates and undergraduates of the university into active service.

GENERAL

Anesthetists to Meet.—The second annual meeting of the Interstate Association of Anesthetists will be held in the Hotel Seelbach, Louisville, July 25 to 27, in conjunction with the meeting of the National Dental Association. Dr. F. Hoeffer McMechan, Avon Lake, Ohio, is secretary-treasurer of the association.

Instruction Camps for Medical Reserve Corps Abandoned.—Owing to the withdrawal of troops from their regular stations for duty on the Mexican border, the War Department has been compelled to abandon the camps of instruction for officers of the Medical Reserve Corps that were to be held during the coming summer.

Harvard Unit Sails for Europe.—The Cunarder *Andania*, which sailed on May 20, had aboard fifty-seven of the Harvard Unit, bound for the Western battle front, among them

being: Drs. Hugh Cabot, George C. Shattuck, Charles W. Peabody, Lyman S. Hapgood, Edward M. Harding, Dennis R. W. Crile, Allen Greenwood and George M. Sheahan.

Hygiene and Public Baths.—At the annual meeting of the American Association for the Promotion of Hygiene and Public Baths, held in Baltimore, May 9 and 10, Dr. Simon Baruch, New York, was reelected president; J. Leonard Mason, Newark, N. J., secretary; August P. Windolph, New York, treasurer, and Dr. Joseph E. Gichner, Baltimore, was elected vice president.

Southern Medical Association Meeting.—Plans for the tenth annual meeting of the Southern Medical Association to be held in Atlanta, November 13 to 16, were discussed at a meeting of the local committee of arrangements, Dr. Seale Harris, Birmingham, Ala., secretary of the association, and editor of its official organ, and the business manager of the journal.——Dr. Stewart R. Roberts, Atlanta, Ga., has been made general chairman of the committee of arrangements.

National Tuberculosis Association Elects Officers.—The National Association for Study and Prevention of Tuberculosis, at its meeting in Washington, D. C., May 9 to 12, elected as president, Dr. Edwin R. Baldwin, Saranac Lake, N. Y.; as vice presidents, Dr. Watson S. Rankin, Raleigh, N. C., and Dr. James A. Miller, New York, and as executive committee, Dr. George Thomas Palmer, Springfield, Ill.; Mr. Homer Folks, New York; Mr. John M. Glenn, New York; Mr. Lee K. Frankel, New York, and Dr. David R. Lyman, New Haven, Conn.

Medical Jurisprudence Association Elects Officers.—The American Association of Medical Jurisprudence, at its annual meeting held in Washington, D. C., May 6, elected the following officers: president, Mr. Oscar W. Ehrhorn, New York; vice presidents, Dr. Philip Coombs Knapp, Boston, and Mr. Bartow S. Weeks, New York; secretary, Mr. Charles P. Blaney, New York; treasurer, Mr. John C. West, New York, and councilors, for the term ending 1917, Mr. Raphael Tobias, New York; for the term ending 1920, Mr. W. O. Hart, New Orleans, and for the term ending 1921, Dr. William C. Woodward, Washington, D. C., and Mr. John S. Durand, New York.

Bequests and Donations.—The following bequests and donations have recently been announced:

Presbyterian Hospital, Chicago, $150,000, by the will of James Longley, Boston.

Guilford County (N. C.) Tuberculosis Sanatorium, a donation of $10,000 toward a $30,000 fund for erection and equipment.

Children's Memorial Hospital and United Charities of Chicago, each $25,000, by the will of Bryan Lathrop.

Massachusetts Medical Society, $1,000, by the will of Mrs. Virginia Carpenter, Dedham.

Mt. Sinai Hospital, New York, a gift of $150,000, for the endowment of a department of surgery of the stomach.

National Association for the Study and Prevention of Tuberculosis, a donation of $100,000, from the Metropolitan Life Insurance Company, to demonstrate by community experiment the possibility of the control of tuberculosis.

National Conference of Charities and Corrections.—This meeting was held in Indianapolis, May 6 to 19. Pittsburgh was chosen as the place of meeting for 1917, and the following officers were elected: president, Mr. F. A. Almy, secretary of the Charity Organization Society of Buffalo; vice presidents, Mr. Joseph Lee, Boston, president of the Playground and Recreation Association of America; Miss Julia C. Lathrop, Washington, D. C., head of the National Children's Bureau, and Rabbi Emil W. Leipziger, New Orleans, head of the Louisiana State Conference of Charities and Correction. The program was accompanied by national exhibits in the State House, occupying three floors of the building. Many other corelated conferences were held during the meeting. A district branch of the conference was created in the form of the National Society of Medical Social Service Workers.

Army Medical Corps Examinations.—The surgeon-general of the army announces that preliminary examinations for appointment as first lieutenants in the Army Medical Corps will be held, July 17 and August 14, at points to be hereafter designated. Full information concerning these examinations can be procured on application to the Surgeon-General, U. S. Army, Washington, D. C. Applicant shall be a citizen of the United States, betwen 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an intern, after graduation. In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of the adjutant general at least three weeks before the date of examination. There will be more than 100 vacancies to be filled after July 1, when the bill for the reorganization of the army becomes a law.

Wine of Cardui Suit.—Since publication of the last item concerning this suit (THE JOURNAL, May 20, 1916, p. 1634) the following witnesses have appeared for the Chattanooga Medicine Company in rebuttal: Dr. George C. Amerson, Chicago; Dr. Henry H. Rusby, New York City; Mrs. James H. McFall, Sladen, Tenn.; Dr. Walter R. Schussler, Orland, Ill.; Dr. Effie L. Lobdell, Chicago; Mrs. John F. Brownell, Franklin Parish, La.; Mr. Daniel Coit Campbell, Chesterfield, S. C.; Mr. W. G. White, Chesterfield, S. C.; Mr. W. A. Watson, Chesterfield, S. C.; Mr. R. T. McCreight, Ruby, S. C.; Mr. Spencer Sellers, Ruby, S. C.; Dr. W. J. Perry, Chesterfield, S. C.; Dr. C. A. Glover, Chesterfield, S. C.; Mr. Clarence L. Goldstein, Oakdale, Tenn.; Mr. W. J. Johnson, Oakdale, Tenn.; Mr. J. H. Lynch, Oakdale, Tenn.; Mr. H. J. Ellis, Ashford, Ala.; Mr. G. M. Gresham, Cottonwood, Ala.; Mr. H. B. Williams, Ashford, Ala.; Mr. Dow Harrelson, Charleston, S. C.; Mr. William Marbury, Sylacauga, Ala.; Mrs. E. E. Gilliand, Kellyton, Ala.; Mr. Arthur Hill Grimmer, Chicago; Mr. Joseph A. Dickson, Heston City, Ten..; Mr. Newt C. Gailbraith, Sunny Point, Tenn.; Mr. L. V. McMurray, Sardis, Tenn.; Mr. J. W. Hassel, Sardis, Tenn.; Mr. A. S. Montgomery, Sardis, Tenn.; Mr. J. W. Knight, Inverness, Fla., and Mr. O. A. Pierce, Tuca, Fla. Besides the above testimony, depositions were read.

Conference of Boards of Health.—The thirty-first annual meeting of the Conference of State and Provincial Boards of Health of North America was held in Washington, D. C., May 16, following the Conference of State and Territorial Health Authorities with the United States Public Health Service. While a certain overlapping in the programs and proceedings of these two conferences seems unavoidable, the fact that the Conference of State and Provincial Boards is essentially an international body has in the past given its proceedings a color not obtainable in the strictly official conference of United States health authorities with the United States Public Health Service. At the recent conference, presumably owing to the unusual conditions now prevailing in Canada as a result of the war, but one Canadian province was represented.

In his presidential address, Dr. Ennion G. Williams, Commissioner of Health of Virginia, urged the importance of coming to some understanding as to the exact limits of the work that is to be undertaken as "public health work." He pointed out the predominant importance of the educational activities of public health agencies at the present time and urged their enlargement and continuance until they are taken up in a satisfactory manner by educational authorities and by private educational institutions. The address suggested the advisability of cooperation between federal and state authorities, or between groups of state and territorial sanitary authorities, in intensive campaigns to be carried on in the several jurisdictions simultaneously against certain definite diseases, in order that the efforts of any one state might not be rendered unsuccessful or diminished in their effectiveness by the introduction of disease from beyond its borders. The use of salvarsan as a public health agency was urged by Dr. Allan J. McLaughlin, Commissioner of Health of Massachusetts, who pointed out that if this remedy or some efficient substitute for it could be made generally available to all persons suffering from syphilis, without reference to their ability to pay for the drug, its more general use would limit the duration of the infective period of the disease in many cases in which this cannot now be accomplished and would thus tend to diminish the number of infections. Massachusetts has already taken action toward this end.

Officers were elected for the coming year as follows: president, Dr. Thomas D. Tuttle, Seattle, commissioner, state board of health, Washington, D. C.; vice president, Dr. Samuel L. Jepson, commissioner of health of West Virginia, and secretary, Dr. Eugene R. Kelley, chief of the division of communicable diseases, state department of health, Massachusetts.

Conference of Health Authorities With the Public Health Service.—The Fourteenth Annual Conference of State and Territorial Health Authorities with the United States Public Health Service was held in Washington, D. C., May 13 and 15. Twenty-nine states and territories and the District of Columbia were represented.

With a view to increased efficiency and economy of work in the field of rural sanitation and to prevent overlapping of various fields of sanitary effort, the conference recommended that the surgeon-general appoint a committee to define the limits of the activities that might properly be regarded as coming within the purview of the work of a bureau on rural sanitation, and to define methods and standards for work in that field. In order to simplify and to make uniform administrative measures pertaining to the sanitation of travel, the conference recommended the appointment of a committee to study the regulations

of the various states and territories for the sanitary control of travel and of common carriers and the federal interstate regulations pertaining to the same matter, and to report at the next annual conference a draft of standard regulations. In so far as uniformity can be brought about in interstate and intrastate regulations, the duties of common carriers, travelers and shippers will be simplified, and the enforcement of such regulations by the authorities charged with such work will be facilitated. The conference went on record as believing in the present feasibility of establishing a morbidity registration area for reportable diseases, analogous to the registration areas established by the Bureau of the Census for births and deaths, and requested that the surgeon-general of the Public Health Service determine the practicability of this project and to fix standards for the admission of states and cities to such a registration area if established. The appointment of a committee was recommended to formulate standard methods of recording public health data, with particular reference to cost accounting by public health agencies, and of a committee to report on feasible methods of increasing the efficiency and extending the influence of future conferences. As a public health measure adopted to prevent and cure pellagra, the conference endorsed the use of a properly balanced diet as the only method now known to be effective. The sanitation of schools and the protection of the health of schoolchildren are, according to a resolution adopted by the conference, proper functions of health authorities rather than of educational authorities, but the latter should cooperate in the planning and execution of such work. Health insurance received the formal endorsement of the conference in a resolution declaring it possible, in the opinion of the conference, for health insurance operated by governmental systems to improve the economic status, efficiency and health of individuals through better treatment of the sick, and to make disease prevention by communities, states and the nation more efficient than at present. Members of the conference were urged to impress on those planning legislation looking toward the establishment of health insurance to incorporate in such legislation provisions to establish effective and close cooperation between the officials in charge of the administration of health insurance and the health officials of local, state and national government.

FOREIGN

Institute for Tropical Medicine at Granada.—Dr. F. F. Martinez, who has published several works on tropical medicine, has been appointed director of the newly organized Instituto de Medicina Tropical y Mediterranea at Granada, Spain.

Physician Temporary Governor of German Province.—Dr. Max Bierfreund was appointed by the military authorities governor of Insterburg, his home, at the time of the Russian invasion of eastern Prussia. Insterburg is not far from Königsberg, threatened by the Russians. He has recently published a book on his experiences, *Meine Erlebnisse als Gouverneur von Insterburg*, which has attracted considerable attention, according to our Dutch exchange.

Deaths in the Profession Abroad.—E. Jungfleisch, professor of organic chemistry at the Collège de France at Paris, with a chair also at the Conservatoire des Arts et Métiers and for thirty years at the Ecole de Pharmacie.——M. Straub, professor of ophthalmology at the University of Amsterdam, aged 57. He was editor of the *Nederlandsch Tijdschrift voor Geneeskunde* for the eight years ending with 1903, and was secretary of the international ophthalmologic congress at Utrecht in 1899, and has published numerous works on ophthalmology.——T. Guilloz, professor of radiology at the University of Nancy, recently died a martyr to his study of the Roentgen rays, aged 48. He has contributed much to their technic and clinical application, and our Paris exchanges relate that although suffering since 1900 he organized the Roentgen-ray service for a large division of the army, and to the very last utilized his sleepless nights in promoting the welfare of the wounded and in scientific research.

PARIS LETTER

PARIS, April 20, 1916.

The War

BLOOD VESSEL SUTURE IN WAR SURGERY

Functional troubles from alteration in the vessels are particularly frequent after traumatisms of war. Dr. Victor Pauchet of Amiens remarked before the Société de chirurgie de Paris that often it is possible to make an end-to-end or lateral suture even if the vessels are separated, for the arteries are elastic. The reason that the surgeon does not do so is that the procedure is delicate and tedious, and requires a scrupulous technic and a special instrumental equipment. If the continuity of the vessels is reestablished, circulatory troubles are less frequent and gangrene rarer than after obliteration of the vessel. This is ample argument in favor of suture, which is to be advised whenever the arterial walls and the neighboring tissues are in such condition as to permit it. Pauchet showed before the Société de chirurgie two cases of popliteal aneurysm, one arterial, the other arteriovenous, both treated by suture with recovery.

Dr. Souligoux of Paris does not agree with Pauchet. He thinks that there are few indications for blood-vessel suture in the cases seen in the base hospitals.

At the Réunion médicale de la IV-e armée, Dr. Séjournet emphasized the advantages of suture for wounds of veins. For wounds of large veins he rejects massive compression because it does not insure drainage and favors infection while not avoiding the risks of secondary hemorrhage. His preference is for lateral suture, which decreases the caliber of the veins but slightly and reestablishes the circulation. This operation demands the nicest care in order not to dislodge a clot of recent formation which may partly obliterate the orifice.

Dr. Brechot of Paris does not agree with Séjournet. He believes that in military surgery suture of the large veins of the neck and limbs should be prohibited. Under peace conditions in aseptic cases with a special technic it may produce a good functional result and the caliber of the vein may remain permeable.

Dr. Potherat of Paris also believes that while, in civil life, suture is advisable in certain cases of lateral wounds, especially wounds made by sharp weapons, this is not the case in military surgery. While simultaneous ligature of the principal artery and of its collateral vein is more likely to produce gangrene of the limb than ligature of the artery alone, this does not mean that ligature of the vein alone will have the same consequences.

Dr. Schwartz of the Faculté de médecine de Paris also thinks that ligature should be preferred to suture for wounds of the veins.

In answer to these objections, Dr. Séjournet explained that he had in mind only partial wounds of the large veins. He did not minimize the indications for ligature, but he did not believe it to be so benign or free from danger to the venous circulation. Moreover, nothing in his three cases gives reason to suppose that suture was followed by the formation of an obliterating clot. No disturbance of the venous circulation occurred.

RESECTION OF THE ELBOW FOR ARTHRITIS CAUSED BY A PROJECTILE

To moderate the enthusiasm of advocates of immediate or very early resection of the elbow in arthritis produced by a wound from a projectile Dr. Bégouin of the Faculté de médecine de Bordeaux reported before the Société de chirurgie de Paris the results of seventeen resections of this class performed by various surgeons, which he had occasion to observe some time after the operation. These results were truly deplorable: In fifteen of the seventeen cases the forearm swung inertly like a flail, even during muscular efforts. In the two other cases the arm was better, but quite unserviceable; neither patient could carry a spoon to his mouth, write or button his clothing. Bégouin believes that the good results reported hitherto were obtained, not in large series, but in isolated cases, in the hands of surgeons who are specially familiar with resection and who had sufficient time —rare now in these times of excessive overwork—to oversee the details of the necesary after-care. He fears that most of the results obtained by average surgeons can scarcely be better than those reported by him. If this be so, there should be no delay in recognizing that the functional results of resection of the elbow performed at this secondary period are clearly inferior to those obtained by permitting ankylosis in good position. During this secondary period of the course of cases of arthritis, comprised between the third or fourth day after the patient's arrival in the base hospital and the second or third month, resection should be performed only exceptionally, if the extent of the lesions and the severity of symptoms make it necessary for saving life or limb. Such cases, however, are rare, and Bégouin has been impressed by the relative benignity of the cases of arthritis of the elbow that he has seen. Under treatment by liberal incision, lavage, especially with hydrogen peroxid, removal of fragments and careful attention, with curettage finally in some cases, uncomplicated recovery has occurred in all cases, with ankylosis as a final result much superior to the swinging forearm mentioned previously.

Professor Quénu believes that Bégouin's warning is timely but should not be exaggerated, especially since the swinging forearm is not an incurable infirmity, but may be corrected without great trouble. The question of the superiority of ankylosis over the mobility given by resection is another matter; the cases should be classified according to the

patient's occupational requirements as to whether strength is needed rather than mobility or vice versa.

Dr. Routier of Paris agrees with Quénu, although he himself has never performed resection of the elbow during suppuration. It should not be forgotten, moreover, that the swinging forearm bears at its end a hand, which is worth more than the best orthopedic apparatus furnished after amputation.

Dr. Broca of the Faculté de médecine de Paris believes the results of arthrotomy with removal of fragments to be better than those of resection in traumatic arthritis of the elbow. He agrees with Bégouin that generalization should not be too sweeping in these cases.

Professor Hartmann does not believe that systematic resection is indicated in suppurating arthritis of the elbow. His patients have recovered under treatment by drainage combined with removal of fragments and immobilization of the elbow, which is always possible, no matter what the extent of the wounds, with a plaster splint. The reason that good results have not always been obtained in suppurative arthritis of the elbow is that immobilization has not been combined with drainage; this immobilization is a necessary feature. It is true that recovery under such conditions leaves the patient with an ankylosis, but if the arm is in good position it gives the patient a firm elbow which is sufficient for the requirements of many callings, even that of a soldier. If the patient later, in civil life, desires to take up a vocation requiring a movable elbow rather than strength, there is nothing to prevent a secondary orthopedic resection.

TREATMENT OF SUPPURATIVE ARTHRITIS RESULTING FROM FIREARM WOUNDS

The Société de chirurgie de Paris continuing the discussion on resections in arthritis, Dr. Auvray of the Faculté de médecine de Paris brings forward statistics of twenty-eight cases of suppurative arthritis of the elbow which he has had occasion to treat since the commencement of the war. He has often sought tb obtain, by resection, a better drainage of the articulation than could be obtained by arthrotomy alone in some cases. He feels sure that he has been able, by resection, to save many limbs and several lives.

Professor Kirmission is of the opinion that early resections for extensive crushing fractures of a joint ought to be practiced only as operations of necessity in order to search in all the remote corners for bony fragments or separated portions of soft tissues. Numerous wounded men have been rendered cripples, with dangling limbs, forever dependent on orthopedic apparatus, because of such imperfectly performed operations. For such persons an ankylosis in good position would have been preferable. Secondary resections are done to give a free exposure for the purpose of combating the suppurating arthritis and the grave septicemia which the latter often provokes. But, here, again, antiseptic dressings properly applied, and especially, rare (sic) dressings, free exposure and thorough drainage suffice in the majority of cases to effect a cure. For his own part, while he has had a large number of crushing articular fractures and cases of suppurating arthritis of the elbow, of the shoulder and of the knee, Kirmisson has been able to obtain cures though he has never performed resection in these cases. Late or orthopedic resections in war surgery have all the value that they have in civil surgery, and are capable of yielding the best results. It is especially at the elbow that orthopedic resection is most useful and most frequently indicated. Dr. Picqué, surgeon of the hospitals of Paris, shows by his personal experience the necessity and advantages of immediate treatment of joint wounds in the ambulances at the front, in the same way as injuries of the long bones, of the skull, of the chest and of the abdomen. This treatment should, above all, be prophylactic and conservative. Arthrotomy is the first step. By it access to the joint is obtained, and the opening must be large enough to permit of exploration. In the rare cases of simple synovial lesions it will suffice, and its nonsuccess in other cases is sufficiently explained by the coexisting bony lesions. Arthrotomy in these cases is but the prelude to an operation on the bone. What form should this latter take? The surgeons of Lyons are frankly in favor of typical resections. Their colleagues of Paris more generally prefer atypical resections. The latter may be anything between a simple cleaning out and an extended resection of the whole of the articular extremity of the bone, determined naturally in each case by the extent of damage. Conservative treatment may also be attempted by such an atypical resection, not only in the case of a wounded man who arrives at the ambulance a few hours after the receipt of his wound, but also when he comes under observation during the first days, though already suffering from a suppurating arthritis or a threatening septicemia; but in this case the vigilance of the surgeon must always be maintained, in order to detect in the course of frequent dressings the earliest indications for a more radical intervention. Conservative policy becomes dangerous as soon as the surgeon relaxes his guard. Indeed, in many cases, it should be but the prelude for a more energetic attack on the condition, in the course of which total extensive resection, supplemented by the usual counteropenings for drainage, may be practiced in accordance with the well-established rules of operative technic. Finally, when, with judicious local treatment and the utmost subsequent care, the infection fails to be localized, one must not await septicemia before amputating. Partial resection, total resection and amputation must be substituted one for the other, successively, to meet the dangers, respectively, of arthritis, of septicemia and of death.

MORE RATIONAL UTILIZATION OF THE SERVICES OF MEDICAL STUDENTS

The minister of war lately received a delegation from the medical group in parliament, which demanded better employment for medical students, who ought to be used as technical assistants and not as mere nurses. The delegation also demanded that the students should be grouped under the name of *élèves aspirants du Service de Santé* near a hospital where they should receive special instruction and, after examination, the title of *aspirants*.

THE EVACUATION OF HOSPITALS NOW LODGED IN HIGH SCHOOLS

The Association des parents d'élèves des lycées de Paris has just passed a resolution demanding the removal from school buildings of the military hospitals that might be lodged in other convenient buildings. The resolution mentions the pedagogic, hygienic and moral disadvantages, the dangers of contagion, the crowding of classes, etc., which result from the prolonged lodgment of hospitals in high school buildings.

Social Hygiene Dispensaries

A law has just been passed establishing public dispensaries for social hygiene and for antituberculosis compaigns to be carried on by means of education, and advice on prophylaxis and hygiene, as well as by assuring institutional care to those ill with infectious diseases. Further, when necessary, the dispensaries will place their services at the disposition of the public for disinfection of clothes and other materials as well as dwelling houses and other places which have been infected. For the indigent sick they arrange free consultations and distribution of medicine. They may place their services at the disposal of mutual benefit societies and charitable organizations.

LONDON LETTER

LONDON, May 8, 1916.

The War

THE NEW BRITISH HELMET AS A PROTECTION AGAINST HEAD WOUNDS

On the Allied side the French were the first to adopt a steel helmet in consequence of the large number of wounds of the head. The British then devised a helmet which has not the surprising lightness of the French, but it is considered to be better designed to meet its purpose. It has a wide downward sloping brim, and thus protects the side and back of the neck and the temples and upper part of the face, as well as the top and sides of the head. This breadth of brim makes the crown look shallower than that of the French helmet, but a more real difference is that the British helmet has a smooth round top, while the crown of the French presents a prominent ridge tapering centrally backward. This ridge was originally intended to strengthen the helmet, but being hollow and open at one end, it also provides a means of ventilating its interior. In addition, it adds to the head dress a style that the English helmet lacks. But it is open to question whether these advantages are not outweighed by the fact that a fragment which would glance harmlessly off the smooth round British crown might be stopped by this ridge on the French helmet, and inflict on the wearer a stunning jar, if not worse. The British helmet stands away from the head about one third inch all round, the weight being borne by a padded leather band fixed to the inner side of the surrounding steel by a series of india rubbia buffers, each about the thickness of a lead pencil, and about 1 inch long. This detail constitutes perhaps the most important

difference between the British and French helmets. The buffers are capable of diffusing and neutralizing the force of a blow which, falling on the closely fitting French helmet, would be conducted direct to the brainpan. The heaviness of the British helmet is a drawback. Possibly its protective effect would be increased by lowering the brim still further so as to guard against bomb fragments or other missiles rising upward from a point within a yard or two of the wearer. The experience of recent wars shows head wounds amounting to 15 per cent.; but recent data of the present trench warfare show a percentage of about 25. The introduction of helmets was followed by a considerable reduction. The cases at one clearing station were analyzed, and it was found that penetrating gunshot wounds of the head formed only 0.5 per cent., while the total fractures of the skull were under 1 per cent. Moreover, there was the direct evidence of the helmets of men who had been struck on the head by missiles of various kinds, but who sustained no injury more serious than a scalp wound. Indeed, some men whose helmets had been dented or pierced or broken were not even aware they had been struck. Though the helmets were by no means bullet proof, they commonly offered such resistance that a missile which penetrated them lost most of its force.

MILITARY ORTHOPEDICS

One of the new features of army medical organization is the extent to which the War Office has used specialists of all kinds. Our leading orthopedic surgeon, Mr. Robert Jones, has been appointed inspector of military orthopedics. He has been surgeon to the military orthopedic center at Alder Hey Military Hospital, near Liverpool, since its establishment. He is also a member of the staff of the hospital at Roehampton for men who have lost a limb in the war. This is a special hospital for men who have undergone amputation of a limb. Accommodation is provided for 300. The men are retained until the artificial limbs they need have been made and adjusted under the supervision of the experienced staff of orthopedic surgeons. A hospital on similar lines is being established in Glasgow, where the same system of supervision and construction of artificial limbs on the spot will be followed. Cases of this class are being reported at the rate of 300 a month. In addition to the men who have undergone amputation there are among those returning from abroad to military hospitals at home many cases of injuries of limbs, especially of joints, varying in severity but all more or less interfering with the ability to work in civil life. Recognition of the fact that these men can be greatly benefited by skilled orthopedic treatment begun as early as possible is shown by the appointment of an inspector of military orthopedics, who will exercise general supervision of the treatment of orthopedic cases in the various military hospitals and sections of hospitals, and arrange for the transfer of suitable cases to selected centers of orthopedic treatment. The types of cases which will come within the scope of the scheme are: (1) derangements and disabilities of joints, including ankylosis; (2) malunited and ununited fractures; (3) injuries to ligaments, muscles and tendons; (4) cases requiring tendon transplantation or other measures for irreparable destruction of nerves; (5) nerve injuries by fractures or stiffness of joints; (6) certain complicated gunshot injuries to joints, and (7) cases requiring surgical appliances. The Hammersmith Military Hospital (in London) will be the first military orthopedic hospital to be organized under the supervision of the inspector of military orthopedics. The buildings consist of the Hammersmith Infirmary and Workhouse, and will hold a total of about 800 men. In addition to the ordinary surgical orthopedic service, there will be departments for treatment by massage and mechanotherapeutics, electric treatment, and radiant heat, whirlpool and other forms of baths, each in its own quarters. There will also be a large and well fitted gymnasium. The workshops of the buildings are large, and it is hoped to be able to fit them in such a way that all splints, surgical appliances, special boots and instruments, etc., may be made on the premises. Special accommodation is to be made for plaster-of-Paris work, including the taking of plaster-of-Paris casts. The staff of the hospital, apart from the administrative officers, will consist in the first place of four surgeons, a consulting neurologist, physicians in charge of the massage, electric and balneologic departments, Roentgen-ray specialist, anesthetist, gymnastic instructor, and four resident medical officers.

THE SUPPLY OF MEDICAL OFFICERS FOR THE ARMY AND NAVY

A considerable number of physicians are still required for service in the army medical corps. The development of military operations has caused a large proportion of the medical officers who have hitherto been serving in this country to be detailed for service abroad, and it is essential that there should be others ready to meet future demands. This request for officers has come before the enrolment scheme (described in previous letters to THE JOURNAL) of the Central Medical War Committee has been completed. The committee is therefore compelled to ask for volunteers from among both the enrolled and the unenrolled. The present condition is well described by Sir Clifford Allbutt and Sir William Osler in a letter to the *Lancet*. During the next few weeks the course of events seems certain to lead to renewed fighting, to many casualties, and to a call for more and more physicians to tend the sick and wounded. The supply could be met—as, if other methods fail, doubtless it would be met—by conscripting physicians; but some time ago the War Office recognized that a scheme of voluntary enrolment could be made to give them what they wanted and in a better way. The working of the scheme was entrusted in England and Wales to the Central Medical War Committee, a committee representing the profession at large and the several medical corporations and schools, and in close touch with the insurance commission and the great government departments which employ physicians. This scheme of voluntary enrolment, as contrasted with conscription, appears to present certain great advantages, in which both the community and the physician share. In any circumstances some physicians must go, and some be kept at home; but whereas with conscription the task of selection might fall into the hands of local lay tribunals, the voluntary scheme provides that in each district it falls to a local committee of physicians whose knowledge of the profession and of local conditions enables them to form a better judgment both of the needs of the civil community and the difficulties of the individual physician. This scheme has been framed to secure also a due rotation of work and sacrifice, so that when the volunteer has completed the year of service for which he signs, he is free to return home, his place in the army being taken by another, an arrangement fairer to himself and better for his civil patients than indiscriminate compulsion. Now the success of the scheme obviously depends on the number of enrolments. If the response is meager the army medical department will be starved, or rather conscription must come. Moreover, the correlative provision for the civil population and the fair distribution of sacrifice will be imperiled. It is true that the response so far has been fair; but with the spring campaign on us, the need for more men, and yet more, is so pressing that there is considerable anxiety even in respect of the immediate future. The scheme can work well only if all, or practically all, physicians of suitable age enroll themselves. However, not unnaturally, some are hesitating to enroll lest a lack of enrolments should expose them unfairly to be summoned. This cannot, in any case, happen, since the committee has decided that no calls shall be made until 75 per cent. are enrolled. Every physician of military age is therefore urged to enroll.

Marriages

JOHN MOORE CONWAY, M.D., Pittsburgh, to Miss Theresa Straitiff of McCalmont township, Jefferson County, Pa., recently.

WALTER H. PARCELS, M.D., Lewistown, Pa., to Miss Mary B. Cummings of Readsville, Pa., at Atlantic City, N. J., May 11.

HERMAN H. DIGHT, M.D., Titusville, Pa., to Miss Lucille Walker of Emlenton, Pa., at Brookville, Pa., May 4.

CARL SCHUMANN, M.D., Greene, N. Y., to Miss Alice C. Selle of Akron, O., at Warrensville, O., May 17.

HENRY BARBER RICHARDSON, M.D., Boston, to Miss Margaret Carpenter of New York City, May 2.

NICHOLAS AUGUST JAMES, M.D., to Miss Mabel Elisbeth Becker, both of Tell City, Ind., recently.

RUSSELL BOWER LYNN, M.D., Elmira, N. Y., to Miss Ethel Isabell Raul of Easton, Pa., May 17.

HOMER P. YEATER, M.D., Maysville, Mo., to Mrs. Essie Welsh of St. Joseph, Mo., April 24.

HOWARD ELMER CAMPBELL, M.D., Anita, Ia., to Miss Anna Laura Smith of Ames, Ia., May 10.

ARTHUR RAYMOND MOON, M.D., to Miss Beatrice Clara Jackson, both of Detroit, May 8.

Deaths

William W. Reed, M.D., Jefferson, Wis.; College of Physicians and Surgeons, Keokuk, Ia., 1863; aged 91; for many years a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; for four years a member of the General Assembly; eight years state senator; twelve years mayor of Jefferson; health officer of Jefferson and Jefferson County for about thirty-six years, and for twenty years a member of the State Board of Charities; an active practitioner for sixty-six years; died at his home, May 10. In 1909 the Jefferson County Medical Society gave a banquet in honor of Dr. Reed to celebrate the sixtieth anniversary of his arrival in Jefferson, and on this occasion presented Dr. Reed with a silver loving cup.

John D. Zwetsch, M.D., Gowanda, N.Y.; Cleveland University of Medicine and Surgery, 1882; aged 57; a member of the Medical Society of the State of New York; formerly a Fellow of the American Medical Association; local surgeon at Gowanda for the Erie Railroad; a member of the consulting staff of the Gowanda State Hospital, and a member of the International Association of Railway Surgeons; was instantly killed by the overturning of his automobile near the Gowanda State Hospital, May 6.

Edward Leaming, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1892; aged 54; a Fellow of the American Medical Association and Royal Photographic Society; professor of photomicrography in the department of pathology of his alma mater and the Rockefeller Institute; president of the Roentgen Society of New York; visiting roentgenologist to Roosevelt Hospital; an expert in roentgenology and photography; died at his home, May 11.

James Ross, M.D., Halifax, N. S.; McGill University, Montreal, 1890; aged 48; lieutenant colonel, C. A. M. C.; for many years editor of the *Maritime Medical News* which was amalgamated with the *Canadian Medical Association Journal;* extra-mural lecturer on dermatology and genito-urinary diseases in Halifax Medical College; surgeon to the Dermatological Department of Victoria General Hospital; died suddenly, May 8.

James Robert Jones, M.D., Winnipeg, Man.; University of Toronto, Ont., 1878; L. R. C. P., London; aged 67; professor of theory and practice of medicine in Manitoba Medical College, Winnipeg; physician to the Winnipeg General Hospital and president of the College of Physicians and Surgeons of Manitoba; died in St. Paul, Minn., January 11, from cerebral hemorrhage, secondary to arteriosclerosis.

Victor Alexander Bles, M.D., Denver; University of Colorado, Boulder, 1895; aged 43; a Fellow of the American Medical Association; formerly assistant to the chair of neurology of St. Louis University and assistant neurologist to St. John's Hospital; later a member of the staff of the Elgin State Hospital; died in St. Luke's Hospital, Denver, May 9, from tuberculosis.

Joseph S. Baldwin, M.D., Freeland, Md.; University of Maryland, Baltimore, 1874; aged 69; sanitary officer of the Sixth District of Baltimore County; for many years a practitioner of Elko, Mo.; died, May 6, in the James Buchanan Brady Institute, Johns Hopkins Hospital, Baltimore, from malignant disease, for which operation had been performed seven days before.

Abner Howard Powers, M.D., Boston; Boston University School of Medicine, 1885; aged 60; professor of surgery in his alma mater; surgeon in chief and dermatologist to the Homeopathic Medical Dispensary and medical director of the Medical Mission Dispensary, Boston; died at his home, May 13, from injuries received in an automobile collision a month before.

William Rufus Hedgpeth, M.D., Paso Robles, Calif.; Missouri Medical College, St. Louis, 1891; aged 60; a Fellow of the American Medical Association; formerly local surgeon to the Southern Pacific System; a well known specialist on diseases of the eye, ear, nose and throat; died at his home, April 22, from angina pectoris.

N. Noble Vance, M.D., Bement, Ill.; Medical College of Ohio, Cincinnati, 1868; aged 71; formerly a member of the Illinois State Medical Society and one of the organizers of the National Association of Railway Surgeons; a veteran of the Civil War; for more than forty years a practitioner of Bement; died at his home, May 10, from cerebral hemorrhage.

William H. Sparling, M.D., Moweaqua, Ill.; Detroit College of Medicine and Surgery, 1872; aged 66; a Fellow of the American Medical Association; and formerly president of the Central Illinois District Medical Society; local surgeon to the Illinois Central system; a member of the National Association of Railway Surgeons; died at his home, April 3.

Auren Alfred Stafford, M.D., Alameda, Calif.; Cooper Medical College, San Francisco, 1896; aged 46; a Fellow of the American Medical Association; formerly president of the Alameda Board of Health; physician to the German Old Peoples Home of California; died at his home, May 7.

Willis Edward Crane, M.D., Hamill, S. D.; Rush Medical College, 1879; aged 59; formerly a member of the South Dakota State Medical Association; died at his home, April 6, from the effects of a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Oliver Henry McMichael, M.D., Minneapolis; University of Michigan, Ann Arbor, 1871; aged 70; a Fellow of the American Medical Association; a practitioner of Vernon Center, Minn., for forty-three years; died at the home of his daughter in Minneapolis, May 10.

Herbert Lucius Hulburd, M.D., Morris, Minn.; Long Island College Hospital, Brooklyn, 1875; aged 64; a Fellow of the American Medical Association; physician to the Government Indian School and Hospital, Morris, Minn.; died at his home, May 13, from septicemia.

John Robert Everitt, M.D., Jersey City, N. J.; Long Island College Hospital, Brooklyn, 1872; aged 69; surgeon to the Jersey City and Emergency hospitals; for thirty years a member of the Jersey City Board of Health; died at his home, May 15, from diabetes.

James Scott, M.D., Portland, Ore.; State University of Iowa, Iowa City, 1873; aged 72; for many years a practitioner of Grant, Ia., but for the last four years a resident of Portland, Ore.; died suddenly in a bank in Albany, Ore., May 10, from heart disease.

Francis William Campbell, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1909; aged 31; visiting anesthetist to St. Catherine's Hospital, Brooklyn, and gynecologist to St. Catherine's Dispensary; died at his home, May 9.

Charles S. Meahl, M.D., Buffalo, N. Y.; University of Buffalo, 1890; aged 47; city diagnostician of Buffalo and for many years a city examiner in lunacy; died at his home, April 17, from cirrhosis of the liver associated with pulmonary tuberculosis.

Norman James Lang Yellowlees, M.D., Toronto, Ont.; University of Toronto, 1909; aged 29; captain in the Canadian Army Medical Corps and on duty with the University of Toronto Base Hospital; is reported to have been accidentally drowned at Saloniki.

Manfred Robert Martin, M.D., Vernal, Utah; College of Physicians and Surgeons, Chicago, 1904; aged 36; a member of the Utah State Medical Association; died in the Garfield Park Hospital, Chicago, May 8, from heart disease associated with diabetes.

Willis W. Barnes, Louisville, Ky.; (license Kentucky, 1903); aged 63; a practitioner since 1882; also a dentist and professor of dental surgery in the University of Kentucky Medical Department; died at his home, March 1, from endocarditis.

Isaac Newton Power, M.D., Cle Elum, Wash.; Willamette University, Salem, Ore., 1877; aged 64; formerly a Fellow of the American Medical Association; a member of the local board of education; died at his home, May 6, from pneumonia.

Albert Wickman, M.D., Newark, N. J.; New York University, New York City, 1894; aged 48; a Fellow of the American Medical Association; physician to the Newark General Hospital; died suddenly at his home, May 13, from heart disease.

Edward A. Fox, M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1905; aged 34; local surgeon to the Big Four System; physician to the Hamilton County Infirmary in 1909 and 1910; died at the Bethesda Hospital, Cincinnati, May 7.

Vincent West McNeill, M.D., Prospect, Ohio; Starling Medical College, Columbus, 1892; aged 45; also a graduate in pharmacy; formerly a member of the Ohio State Medical Association; died at his home, May 12, from uremia.

Johnson W. Pettijohn, M.D., Hoyt, Kan.; Georgetown University, Washington, D. C., 1864; aged 82; a member of

the Kansas Medical Society and a pioneer practitioner of Hoyt; died at his home near that place, May 14.

Robert G. Schaller, M.D., Alton, Ill.; University of Munich, Bavaria, 1889; aged 66; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died suddenly at his home, May 11.

James Edwin Weller, M.D., Richmond, Ind.; Jefferson Medical College, 1901; aged 41; a member of the Indiana State Medical Association; a surgeon of volunteers during the war with Spain; died at his home, May 10.

Arad A. Simons, M.D., Cloverport, Ky.; University of Louisville, Ky., 1892; aged 57; a Fellow of the American Medical Association; surgeon to the Henderson and St. Louis Railroad; died at his home, May 7.

Henry L. Donsife, M.D., Frederick City, Md.; University of Maryland, Baltimore, 1864; aged 73; died in the Montevue Hospital, Frederick, May 10, from shock from scalds believed to have been accidentally received.

John F. Hanifin, M.D., Holyoke, Mass.; College of Physicians and Surgeons, Baltimore, 1911; aged 30; a member of the Massachusetts Medical Society; died in Saranac Lake, N. Y., May 7, from tuberculosis.

Stephen Elvaro Webber, M.D., Calais, Me.; Harvard Medical School, 1894; aged 55; a Fellow of the American Medical Association; died at his home, January 11, from chronic interstitial nephritis.

Pierre Valance Roudiez, Denver; (license Colorado, 10-year clause, January, 1891); aged 81; surgeon of volunteers during the Civil War; died at his home, May 13, from pneumonia.

James D. Peters, M.D., Renton, Wash.; Eclectic Medical Institute, Cincinnati, 1868; aged 80; for more than forty years a practitioner of Grand Rapids; died at his home, April 13.

Marcus Barclay Dwight, M.D., Philadelphia; Jefferson Medical College, 1875; aged 64; a member of the Medical Society of the State of Pennsylvania; died at his home, May 8.

William Merrill Bullard, M.D., Flatbush, Brooklyn, N. Y.; University of Göttingen, Germany, 1867; aged 74; died at the home of his daughter in Brooklyn, May 12, from heart disease.

Daniel E. Evans, M.D., Nanticoke, Pa.; Baltimore University, 1892; aged 66; formerly a member of the Medical Society of the State of Pennsylvania; died recently at his home.

Adam Ramsey Insley, Little Rock and Redfield, Ark.; (license, Arkansas, 1903); aged 80; a veteran of the Civil War; died at his country home at Redfield, April 27.

Samuel W. Sigler, Warren, O.; (license Ohio, 1899); aged 78; for more than fifty years a resident of Niles, O.; died at his home in Warren, May 12, from uremia.

Ludwell Yancy Browning, M.D., Mays Lick, Ky.; University of Pennsylvania, Philadelphia, 1866; aged 75; died at the home of his son near Elizaville, Ky., April 29.

Joseph Rowe Webster, M.D., North Lexington, Mass.; Harvard Medical School, 1859; a member of the Massachusetts Medical Society; died at his home, May 9.

Joseph N. Charbonneau, M.D., Worcester, Mass.; Victoria University, Toronto, Ont., 1874; aged 65; died at his home, February 9, from valvular heart disease.

William Henry Hoyt, M.D., Wenham, Mass.; New York University, New York City, 1886; aged 53; formerly of Sioux City, Ia.; died at his home, May 3.

Thomas S. Gibson, M.D., Alexandria, Va.; University of Maryland, Baltimore, 1887; aged 56; died at his home from cerebral hemorrhage, April 26.

Edward Milton Duff, M.D., Hollidaysburg, Pa.; University of Pittsburgh, 1892; aged 49; died in his office, May 4, from cerebral hemorrhage.

John Huntington Van Kleeck, M.D., Brooklyn; University of Buffalo, 1872; aged 67; died at his home, May 2, from pneumonia.

George Washington Morgan, M.D., Keener, Ala.; University of Tennessee, Nashville, 1889; aged 60; died at his home, April 30.

Isaac Cheney McCoy, M.D., Fort Worth, Texas; Medical College of Georgia, Augusta, 1870; died at his home, April 29.

Sheldon S. Thayer, M.D., Paisley, Ore.; University of Oregon, Portland, 1899; died at his home, April 15.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WINE OF CARDUI SUIT

(*Continued from page 1649*)

May 2, 1916, Morning

TESTIMONY OF DR. NATHANIEL H. ADAMS

Dr. Nathaniel H. Adams was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. Nathaniel H. Adams testified that he resides in Oak Park, Ill., and has an office in Chicago. He has been practicing medicine for twenty years. He was graduated from the Northwestern University Medical College in 1896. He taught in the Illinois Medical College, the Chicago Dental College, and has attended patients in various hospitals for ten or fifteen years. He taught chemistry for fourteen years and anatomy for three. He is a member of the Chicago Medical Society, Illinois State Medical Society, the American Medical Association, and the Therapeutic Club. He has done a general practice until within the past few years in which he has specialized somewhat in nervous diseases. His treatment has been almost exclusively medical, and surgical cases have been referred elsewhere. He knows of cnicus benedictus, but has never used it as a medicine. He has had much experience with viburnum prunifolium, which he has used in various forms. This experience has been that used alone it has no medical value. If it is associated with an active drug it does not seem to add or detract from the potency of that drug.

Q.—In other words, if I understand you, you don't see any benefit—or have had no benefit from it either alone or in combination? *A.*—Not from a drug standpoint, no sir.

Q.—Now, explain, doctor, what you mean by that, "not from a drug standpoint." *A.*—I mean this; that I have been disappointed in the use of the drug for any therapeutic value. I will say, however, that black-haw has a clean bitter taste, and that this clean bitter taste with the slight flavoring of valerianic acid which is present, that it makes it a modifier of other tastes. It is a drug that can be used in combination for the sake of its flavor and for the sake of adding a clean bitter to nauseous drugs, without having any medicinal value itself.

The witness was then asked as to whether he had any opinion as to the value of a hypothetic medicine similar to that about which other witnesses were questioned.

Q.—Doctor, is there any ingredient as described, or ingredients, aside from the alcohol in this solution, that, in your opinion, would prevent the preparation being used in larger doses than in tablespoonful doses. *A.*—In my opinion, this preparation contains a simple herb, and a simple bark, which are not potent; which have no strong medicinal value and are not poisonous. For that reason there is nothing in these two drugs to prevent the taking of this medicine in increasing doses for its alcoholic effect.

The witness was asked to distinguish between the cure and relief of various conditions, using as an example the treatment of a syphilitic ulcer of the cervix.

Dr. Adams then defined the word "tonic." He would not give a tonic for the cure of uterine prolapse, gonorrhea, uterine retroflexion, or an uterine inversion. Tonics are rarely necessary in the treatment of such conditions.

Ergot, pituitrin and hydrastis might be considered uterine tonics, he said. He then described the way in which ergot acts as a uterine tonic.

There was described to the witness an experiment similar to that performed by Dr. J. Clarence Webster, and he stated that a drug injected into the uterine wall which would produce no observable effect within ten minutes would be an inert drug. It is not a uterine tonic or a uterine sedative.

The witness then stated that the official fluidextract of ergot contains approximately 50 per cent. of alcohol, and that amount is required to extract the virtues and preserve the preparation.

Q.—Doctor, is there any disadvantage in using 50 per cent. of alcohol as you find it in the fluidextract of ergot? A.—Yes, indeed there is.

Q.—What is it? A.—Why, the disadvantage—there are several disadvantages. One is that ergot is nearly always used hypodermically, and alcohol is an irritant in that use. Then again, alcohol is a direct antagonist to the proper action of ergot. Alcohol tends to relax the vessels of the womb, and the action of ergot which is sought is to contract them. The drug value of the fluid of ergot, however, is great enough to overcome the disadvantage of the presence of alcohol. So, if the fluidextract of ergot is used, you have to tolerate the bad effects of the alcohol for the good effects of the ergot.

Q.—Now, doctor, is that the reason that you use the ergotin instead of the fluidextract? A.—Yes.

Q.—In what dose, when you use the fluidextract of ergot, in what dose do you prescribe it? A.—Ordinarily, half a teaspoonful.

Q.—Under what conditions, and under what circumstances do you prescribe the fluidextract of ergot? A.—In the great majority of cases, it is prescribed after childbirth to shut down the womb, tighten the womb, so that the blood will be squeezed out of it. It favors involution of the womb.

Q.—To what extent do you use it, under such circumstances, how long? A.—One dose, as a rule, following delivery.

Q.—Did you ever give it in a tablespoonful dose? A.—Never in my life.

Q.—Why? A.—Why, that is tonic, that is a poisonous dose; verging on a dangerous dose.

There was then read to the witness an advertisement from the New Orleans *Picayune* similar to those read to previous witnesses. He stated that the hypothetic medicine corresponding to Wine of Cardui is not an absolutely natural vegetable food tonic for starved female functions. The statements in the advertisement he considers absolutely false and vicious as leading to false hope.

He described the way in which a bitter might be considered a tonic, but stated it could not be considered restorative. He regards alcohol as an exhilarant and not a tonic. He considers it absolutely detrimental in cases of inflammation of the pelvic organs of the female. He considers that alcohol in the strength mentioned would brace up a patient suffering from some form of uterine displacement, the exact nature of which was not known, and that after the bracing effect there would be depression so that there would form a tendency toward increasing the frequency and the amount of the dose.

Dr. Adams then described the various reflex effects on the breasts of tumors of the womb, pregnancy, etc. There was read to him from the Home Treatment of Female Diseases, 1912 Edition, an article under the general subject of the female breasts. Dr. Adams mentioned some of the various diseases of the reproductive organs in the pelvis as well as local conditions in the breasts which are evidence of disease. It was his opinion that the use of this medicine would be to mask these conditions, not to relieve them.

ALCOHOL AT PUBERTY

Dr. Adams then described the condition of puberty. He considers it a natural physiologic condition, and stated that a young girl in good health does not require any medicine at that time.

He was asked as to his opinion of the advice that the hypothetic medicine could never do anything but good if taken by a girl at puberty. He stated that the recommendation is vicious and the advice is outrageous.

CROSS-EXAMINATION BY MR. HOUGH

Q.—You are the Nathaniel H. Adams who testified in the Jiroch case in Washington, are you? A.—I am the man who went to Washington for the attorney in that case to help him in regard to drug matters.

Q.—That was in April, 1914? A.—I think that is right.

Q.—You testified in that case that treatment by mail was a proper legitimate way to treat, didn't you? Q.—No. I testified as to the value of drugs, and I testified that the drugs which they used were good drugs, and all right, and that if they were able to make a diagnosis by—in that manner, that such drugs could be properly used.

Q.—You testified that they would be entitled to form an opinion from the symptoms given by a patient by mail, or over the telephone or any other way? A.—I testified that that would be one of the methods by which they might make a diagnosis, yes.

Q.—You testified that viburnum prunifolium was a good remedy for uterine troubles, did you not? A.—No, I don't remember that. I think there was a preparation of Parke, Davis tablets.

Q.—What was that answer? A.—There was a preparation of Parke, Davis tablets some of which contained viburnum prunifolium with other drugs. There was no viburnum prunifolium alone to my knowledge.

Q.—Did you not testify that the fluidextract of viburnum prunifolium was recognized medicine for these conditions? A.—The fluidextract?

Q.—Yes. A.—Not to my knowledge, no sir. It was a matter of tablets. They were compound tablets, they were not viburnum alone.

Q.—What were they compounded with? A.—I have forgotten.

Q.—You manufactured "patent medicines" at one time yourself, didn't you? A.—I never manufactured "patent medicines," but I have manufactured proprietaries, which were used by physicians.

Q.—When was that? A.—Well, for many years I was in the drug business, and I am a graduate of the College of Pharmacy, and I was quite interested in the combination of various drugs and bringing out the best value of various drugs and I was also interested commercially in trying to make compounds which would be of use to physicians and compounds for which I could get a sale from which I could make a living by their real value and merit.

Q.—You manufactured some for home treatment, did you not? A.—For home treatment?

Q.—Yes. A.—Not myself, no, sir. I may have done so in other drug stores where I was employed. I may have manufactured them for druggists, but not for my own self.

Q.—You were being examined with reference to symptom blanks and advertisements of the Dr. Jiroch Company, were you not, at that time? A.—Well, in this hearing before the Master, it was a hearing—

Q.—It was before the Attorney General and in the Postoffice Department in Washington, was it not? A.—Yes, that is right.

Q.—And was a proceeding for the alleged misuse of the mails? A.—Well, I went there to testify as to my knowledge of drugs.

Q.—You testified that that way of prescribing was legitimate and proper, didn't you? A.—No. I testified that it was a method by which they could prescribe, but I did not testify that it was the best method or a good method, or the method employed by me.

Q.—I am not asking you whether you said it was the best method. I am asking you whether you said that it was a legitimate method? A.—No, I did not use that term.

Q.—What did you say about that? A.—I said— I stated that a physician could give drugs for the treatment of disease, when the symptoms were thoroughly described to him, sufficient for him to make a diagnosis, and I stated that that might be applicable, under certain circumstances. I stated it was not my method, and I did not consider it a good method, and it was not one in ordinary use. My object there was to testify as to the value of these drugs.

Q.—Did you state this:

"For instance, it is possible and practicable for a doctor to treat many patients in the space of an hour or two who comes to his office, and he will often accept their statements, and he may even accept their statements over the telephone. For instance, it is a common every-day practice for some one to call up and say 'I have a cold or a headache, or I am vomiting' or some thing like that, 'tell us something to do.' That is done over the telephone. That is not the ideal, but it is the practical method. A busy man will run into the office, perhaps a lawyer, and will say 'I have to go out on an argument this afternoon. My head is throbbing, give me something for it.' We do not go over the man's body very much, but give him something to meet the symptoms. That is ordinary practice, and we could not be in business if we did not do that sort of thing." Did you make that statement? A.—Oh, I think I did, it sounds right.

Q.—Now, on the question of "cure" you testified as to the meaning of that on that occasion, didn't you, or do you recall. A.—I do not recall that.

Q.—I will read to you from the report of your testimony: "In the general run of medical practice, in your treatment, when you speak of curing a disease, what is the usual meaning or significance of that term? In general, what is meant by that?" And your answer: "Of course, among physicians, it would mean relief of the diseased condition. For instance, if we cure a boil by lancing and leave a scar, the word 'cure' could only mean relief in the sense that we would have relieved the condition." You stated that, didn't you? A.—I think that is very likely that physicians do not consider a cure to be a cure unless they relieve the disease, unless the disease is cured.

Q.—You made that statement, didn't you? A.—I do not know whether I made that or not. I think very likely I did.

Q.—In answer to Mr. Dobbyns' question, "All I want to get at is what is generally understood by the treatment of disease?" your answer was "My only answer to that question is this: that the object of the practice of medicine is to relieve human suffering and prolong human life and we cannot perfect the bunged up damaged machines that come to us. We patch them up and try to relieve their symptoms and do to a certain extent." You made that statement, didn't you? A.—Oh, sure, that is right.

Q.—And furthermore: "In the practice of medicine, the important thing, as I understand it from the standpoint of the physician, is to relieve the symptoms and relieve the human suffering?" And your answer is, "Yes, sir." A.—You mean that was a question asked of me?

Q.—That was a question asked of you, and your reply is "Yes." A.—Well, that is my opinion, that to relieve the human suffering is very, very important, if the disease cannot be relieved.

Q.—Well, it was in that sense that you used the word "cure" was it not? A.—I used the word "cure" only in the sense of curing the disease. Otherwise it is relief or partial cure.

Q.—On that occasion you testified in that way, didn't you, that that was the sense in which you used the word "cure?" A.—That

was not my conception; it was partial cure or relief of the symptoms. We cannot always cure individuals, but we can often relieve them.

Q.—Well, then, you stop treating them, don't you? *A.*—Why, no.

Q.—If they are relieved of the symptoms? *A.*—Why, it depends upon whether—we do not if the symptoms recur. If the symptoms recur they have to have further treatment.

Q.—Suppose they do not recur; suppose the symptoms do not recur? *A.*—Well, if the disease—if the disease has abated so that it has become a condition which gives no active symptoms which demand treatment, then of course treatment should not be given until that disease gets in condition where the patient is suffering again, or where they need treatment.

Q.—Then, if a woman has symptoms in connection with some pelvic disturbance, and she is treated for the symptoms, and her pain is relieved, that woman considers that she is cured, and the doctor considers she is cured so far as those symptoms are concerned. Isn't that a fact? *A.*—That does not apply to her disease. That applies merely to her symptoms.

Q.—That is what the doctor treats, isn't it? *A.*—The doctor treats the disease, but he also treats the symptoms, because it is impossible to separate the two.

Q.—Didn't you testify on that occasion that the practice was to treat the symptoms? *A.*—Why, very often we have to treat the symptoms, because the disease cannot be relieved. For instance, in advanced cancer, where a woman is going to die of cancer, you can relieve the painful condition, but you may not be able to cure the disease.

Q.—I am talking about the menstrual disturbances or pain in connection with them or inflammation of the pelvic organs or the pelvic cavity which produces pain. You do treat the symptoms in that class of cases, don't you? *A.*—Why, the painful symptoms—

Q.—I am talking about a case without a cancer. *A.*—The painful symptoms have to be treated; you have to relieve those and then you must cure the condition underlying it, if it is possible.

The witness was then asked concerning his testimony regarding a number of remedies advised in the above-mentioned cases. It was his recollection that there were tablets containing viburnum prunifolium with other drugs.

The witness testified that he spends part of his time testifying in the court. He probably testifies on an average of two or three times a week.

Q.—You were asked further: "I will ask you if in your opinion, the treatment or the carrying on of a business through advertisements of this kind, and with this kind of treatment, is likely to be in any way dangerous to the party?" And your answer: "I have thought that question over and I do not see how a thing which requires ten days use and then another application and the length of time—I do not see how any very acute illness could fall within the range of this treatment, because first, they must write for the remedy, and then get it back, and then take it. The most acute cases would have been developed or terminated within the time. The length of time necessary for the correspondence practically throws out that sort of ailment. I do not see where the public life or public health, or the health of the patient would be greatly endangered, if at all, by this method. There was a question brought up the other day that maybe a person would delay his treatment, and die of the disease by reason of the delay, notably cancer was quoted, that during the delay occasioned by this remedy a person might die of that disease or it might mature to such an extent that he had gone by the hopeful period. I think the possibility of that happening with the type of cases which would answer this advertisement is almost infinitesimal: I think that would happen so seldom that it is hardly to be considered." You made that statement, did you? *A.*—Why, I think that is right.

The witness then testified that in answering as to his opinion as to the use of the hypothetic medicine he based his opinion on his personal use of viburnum prunifolium and not on reading, but that he accepted everything stated in the hypothetic question concerning viburnum prunifolium as fact. He knew of cnicus benedictus from instruction which he had received. He formerly sold the drug in the form of a herb. He sold it under the name of centaurea and chadron. The people who used it were foreigners. The witness testified that he does not know that all the pharmaceutical houses of the country make tinctures of carduus benedictus. He has never experimented with the volatile oil.

The witness was questioned specifically as to the content of carduus benedictus which is represented by cnicin and the relation of this portion to the entire extracted matter.

Dr. Adams mentioned the various conditions of the female uterus in which tannin might be used. He defined a hepatic stimulant and stated in what way such a stimulant might be of service in the treatment of female diseases. His remembrance of carduus benedictus is that it was used as a simple bitter, usually in the form of infusion.

The witness does not know of any similarity between cnicin and quinin. He defined a diuretic and a diaphoretic. He stated that he used viburnum prunifolium for a number of years.

Q.—During that time you gave it to women with menstrual troubles? *A.*—Yes, I used the drug quite a little.

Q.—And it contained 50 per cent. of alcohol? *A.*—Not always. I have used the fluidextract.

Q.—But that is only recently? *A.*—And, Mr. Hough, the fluid extract contains more than 50 per cent., if I remember right.

Q.—Fifty-five per cent., is it not? *A.*—It is 600 c.c. of alcohol to 300 c.c. of water, I think is the menstruum.

Q.—You did not think, in giving it to women, that you were doing anything vicious, did you? *A.*—Why, I tried the drug in that proportion, giving it in half teaspoonful doses, not in tablespoonful doses, and I did not decide that the effect of this drug was largely—in that form—was largely alcoholic, and not due to the drug value.

Q.—You say that there is, in your opinion, absolutely nothing in Wine of Cardui which would prevent a woman from taking it in constantly increasing doses? *A.*—Nothing that I know of, no sir.

Q.—Did you ever drink it yourself? *A.*—I have.

Q.—Did you increase the dose? *A.*—No.

Q.—You say alcohol itself is not a food under any circumstances? *A.*—My opinion is that it is not a food, because it poisons the individual before it can act as a food.

Q.—It does what? *A.*—Because it poisons the individual before it acts as a food, and it is never a food except in a very limited sense indeed.

Q.—How does it poison the individual before it can act as a food? *A.*—Well, it—that is, in small quantities it affects the will and lessens self control. It has an effect upon the nervous system, especially in the young.

Q.—Does the percentage make any difference in your opinion? *A.*—Naturally the larger the dose, the greater the amount of alcohol, the greater its effect.

Q.—Have you experimented any yourself in determining the physiological effect of alcohol in various proportions? *A.*—In various proportions?

Q.—Yes? *A.*—No, I cannot say that I have.

Q.—Has your knowledge on that subject been gained by reading the literature? *A.*—No, sir, it is based entirely upon what experience I have had with the use of alcohol and alcoholic substances.

Q.—How can you express any opinion on the subject if you have never experimented yourself? *A.*—Well, the use of a remedy or the use of a drug in your practice, to my mind, is not the same as experimentation. There you carry out a series of experiments to determine a point. These are observations which I record from having used the drug.

Q.—Did the women that you gave the medicine containing alcohol to, acquire the alcoholic habit, any of them? *A.*—I have never used alcohol or alcoholic drugs in sufficient quantity, or over a long period of time. I have never given drugs indiscriminately to everyone, or other medicines. I have always kept them under control.

Q.—Just answer my question? *A.*—That is my answer.

Q.—Then you say they have acquired the alcohol habit? *A.*—They have not.

Q.—Did any of the women you treated during the 30 years get well, or get relief from their symptoms? *A.*—Yes, sure.

Q.—What percentage got well? *A.*—Of all kinds of cases?

Q.—Of female troubles which had — which required no operation. *A.*—Oh, I think a large proportion of women recover under medical treatment.

Q.—I am asking you what proportion of yours got well? *A.*—Well, of purely functional troubles, without displacements, tumors or anything of that sort, I believe that fully 50 per cent., perhaps more than that, would recover under proper treatment.

Q.—Then you mean you handed over the other 50 per cent. to surgeons after trying to cure them or did you let them go? *A.*—No, I do not mean that a certain amount went to surgeons. A certain amount of cases were relieved by mechanical supports, and a certain amount of cases would carry their defects through their lives, because it was not possible to operate, or it was—their mechanical supports would give them the needed relief.

The witness was then cross-examined concerning the difference between relief and cure of various female diseases. There was then read to the witness a statement from his testimony in Washington regarding what he meant when he used the words "bladder trouble." He replied that the remedies under discussion were to alleviate and were very seldom specific remedies. The same thing was there stated regarding female troubles.

Dr. Adams stated that Mr. Hough was reading symptoms from a card that were not in his statement. Mr. Hough replied that these were in the witness' statement and asked him if he wishes to change it. He replied that it was immaterial.

Further hearing of the case was adjourned until 2 o'clock the same day.

May 2, 1916, Afternoon

Court met pursuant to recess. Dr. Nathaniel H. Adams resumed the stand for further cross-examination by Mr. Hough.

CROSS-EXAMINATION BY MR. HOUGH (*continued*)

Dr. Adams testified that a woman as a rule cannot diagnose her own case. She can state when she has suppressed menstruation.

Q.—Now, what medicines do you usually give her for that? *A.*—Why, we must know. If it is due to pregnancy, absolutely nothing. If it is—

Q.—Well, suppose it is a young girl who is unmarried? *A.*—Why, my habit is to give her a good dose of quinin, about two grains three times a day. Give her a hot foot bath, or mustard water, to give a hot drink of hot lemonade, and to put a hot water bottle at her back, the lower part of her back, and sometimes over her abdomen. That is my custom and habit with young girls.

Q.—It is considered a safe thing to prescribe on account of the symptoms given by the patient, is it not? *A.*—Such treatment with a young girl I should think would be safe.

Q.—Now, when a woman has painful menstruation, she tells a doctor that she has trouble at her menstrual period, and she is able to diagnose that symptom and that condition, isn't she? *A.*—Not the condition. She is only able to diagnose the pain.

Q.—Well, I am not talking about the thing that caused it. She knows that that is the symptom? *A.*—Yes, she knows she is in pain, yes.

Q.—Now the first thing to do is to treat that symptom, isn't it? *A.*—The symptom has to be treated. And I will not say that that is the first thing to do, but it has to be treated, the pain has to be relieved until you find out what is the trouble, what is causing the pain.

Q.—Well, what medicines do you give in that class of cases when you reach the conclusion that it does not require a surgical operation? *A.*—Well, if it is due to a flexion of the womb, to a bending of the womb, why I give a sedative treatment, and I have the woman go to bed, and use hot applications over the abdomen, have her take hot drinks. If there is a great deal of pain I give her sedative medicines.

Q.—Name some, doctor. *A.*—Why, one that I am very apt to give is to give aspirin, and sometimes a mixture of caffein and aspirin and acetanilid.

Q.—But you used to give viburnum compound? Haven't you? *A.*—I have given viburnum compound, yes.

Q.—And you used to give fluidextract of quassia? *A.*—Of quassia?

Q.—Yes. *A.*—I have never given quassia for that purpose alone.

Q.—And you have given fluidextract of pulsatilla, haven't you? *A.*—I have used pulsatilla in combination with other drugs, yes, sir.

Q.—And you have given fluidextract of gelsemium, haven't you? *A.*—I have given gelsemium alone, yes.

Q.—And you have given fluidextract of black haw?

THE COURT:—Do you mean fluidextract?

The Witness:—Fluidextract, yes, sir.

THE COURT:—Try and answer the questions, doctor.

The Witness:—Yes, sir, I want to.

Mr. Hough: *Q.*—And also black haw? *A.*—I have used all of those remedies.

Q.—For female diseases? *A.*—I have tried them in female diseases, yes, sir.

Q.—Now you would give the same remedies for metrorrhagia and menorrhagia, wouldn't you, as far as the symptoms are concerned? *A.*—Well, I would if they had the same cause.

Q.—There is usually inflammation of the womb or the pelvic cavity in connection with all of those conditions, is there not? *A.*—No, I don't think there is usually so. I think it is often so. There is often inflammation.

Q.—Well, in what per cent. of the cases? *A.*—Why, I think there is pelvic inflammation in dysmenorrhea in perhaps half the cases.

Q.—Now, by the way, pulsatilla is what you call a home remedy for those things, isn't it? *A.*—No, sir, pulsatilla is a powerful, dangerous drug with a dose of two to ten drops.

Q.—Didn't you testify in Washington that it was a home remedy? *A.*—Pulsatilla?

Q.—Yes, sir? *A.*—No, not alone, no, sir, it is not.

Q.—Well, we will see if we cannot find it for you. Speaking of female diseases, the Assistant Attorney General says: "Is there any other prescription, Doctor, you would use for that type, any internal remedies?"

"*The Witness:* (Meaning yourself)—Yes, sir. They have a remedy similar to Hayden's Viburnum Compound. Here is a tea. This tea is used, and is Remedy No. 39. It contains cimicifuga, gelsemium, Jamaica dogwood, fennel, anise, caulophyllum, viburnum prunifolium, squaw vine, aletris, pulsatilla, celery seed.

"*The Assistant Attorney General:* *Q.*—That is another home remedy?

"*The Witness:* *A.*—No, your Honor, pulsatilla is a home remedy, but this is a tea. The herbs are cut up and set out in dry packages, so much to a cup."

Mr. Hough: *Q.*—You made that statement, didn't you? *A.*—But not in the sense that you asked me, as though that was a simple remedy. No, it is a remedy that is used alone, and I didn't mean that anybody puts pulsatilla in the hands of a family, because it is a powerful, dangerous drug.

Q.—What are the other home remedies which you referred to, for female diseases? *A.*—Well, home remedies are the simple teas. There is for instance, the pennyroyal, and things which can be used as hot drinks, and which have no danger connected with them. Such things are safe in the hands of families.

Q.—You did not consider that the alcohol in the medicines which you gave for those female troubles had any specific action as alcohol, did you? *A.*—Well, I would if I ever had given it in quantity to get the alcoholic effect, but when I used the alcohol in these remedies the alcohol carried its full drug content. And the dose would be represented by half a teaspoonful or a teaspoonful.

THE COURT:—May we have a definition here of what is meant by a "home remedy?"

Mr. Hough: *Q.*—What do you mean by a home remedy? *A.*—Why, I mean by a home remedy, a simple drug which can be put in the hands of a family for use in simple ailments without any danger of its doing harm if they make a mistake and take an overdose.

Q.—What would be a home remedy for amenorrhea or suppressed menstruation? *A.*—Quinin, mustard foot baths, hot drinks, or a little gin with an adult, with a grown person, and hot lemonade, where the trouble is purely functional.

Q.—What would be a home remedy for dysmenorrhea?

THE COURT:—Well, let us get away from these indefinite terms. What do you mean by "a little gin?"

The Witness:—Yes, I mean this, that gin is an alcoholic drug containing juniper, and juniper in the quantity that is contained in gin, and given in a hot drink, and given in one or two doses to a grown person, and not continued, has a tendency to make an easy flow.

THE COURT:—Well, how do you square that with your definition of a home remedy, which as you have defined it, includes some simple drug that cannot be harmful if you take an overdose? *A.*—Well, gin, of course, could be harmful if it was taken in an overdose, there is no doubt about that. They can get drunk on it. And the reason of my mentioning gin is that it is a very commonly used preparation, and I mentioned it because it has alcohol in it, and it has another drug, and I think the knowledge of it is so general, I think everybody knows it as well as a doctor, almost, that they don't take that in a poisonous dose, unless they want to get drunk.

Mr. Hough: *Q.*—The effect of 48 drops of alcohol by itself is altogether different from the effect of 48 drops of alcohol in enough water to reduce the percentage to 20 per cent., isn't it? Or would you say the effect is just the same? *A.*—Why, my opinion is that the effect is about the same.

Q.—Now, do you think that you could take down in your mouth 48 drops of pure alcohol? *A.*—Oh, do you mean the effect in my mouth?

Q.—Well, anywhere inside of you? *A.*—Well, I misunderstood you. Of course the local effect of 48 drops of alcohol is burning, and you have to add enough water to it so as to permit you to swallow it.

Q.—Therefore you couldn't take 48 drops of pure alcohol in your mouth, could you? *A.*—I wouldn't want to.

Q.—Do you think anybody could? *A.*—Yes, I think they could, but I don't think it would be advisable.

Q.—Now, when it is reduced to 50 per cent. it is easier to take that amount in your mouth, isn't it? *A.*—Well, 50 per cent. is pretty strong. That is the strength of whisky.

Q.—Yes, and it is also the strength of the gin that you have just been talking about? *A.*—The strength of gin, yes, sir.

Q.—Then when you reduce it to 40 per cent. its effect is less marked, isn't it? *A.*—Well, the local effect, the local effect is less marked. The general effect, in my opinion, would be about the same.

Q.—And the effect, when reduced to 20 per cent. would be less still, wouldn't it? *A.*—There would be very little local effect, and you would have only the general effect to deal with.

Q.—Now, how much alcohol can a person oxidize in the system freely? *A.*—Freely?

Q.—Yes? *A.*—Well, I think under the most favorable circumstances a 150 pound person in 24 hours can actually oxidize about an ounce and a half.

Q.—How many drops would that be? *A.*—Four hundred eighty and 240—that would be 720 drops.

Q.—Of pure alcohol? *A.*—Yes.

Dr. Adams was then asked concerning diagnosis as to the cause of a bearing-down feeling and pains during the menstrual period. He stated in what way he would arrive at a diagnosis.

The witness stated that he makes a distinction between the classes of patients, as drugs and general treatment must be adapted to the circumstances of the patient. He was asked to what extent he would say that a woman with female trouble could diagnose her own case.

The witness was asked if he did not testify in Washington that it would be proper to treat on the diagnosis sent in by the patient. He replied that in certain cases when the patient had described the case completely and under certain conditions if one can arrive at a diagnosis and if he is sure of the case it would be proper to treat it. He was asked whether there would be danger in this way of overlooking consumption or cancer. He replied that the likelihood of missing such conditions is greatly reduced by a physician's examination. He was asked concerning the use of medicines to make the breasts full. He stated that drugs are given when there is insufficient lactation after childbirth, and that certain drugs may be taken for cosmetic purposes.

Q.—What do you mean by "cosmetic purposes?" *A.*—Why, I mean that by rubbing in ointments, and perhaps there are one or two drugs, they have a tendency to make a full breast which women sometimes desire.

Q.—Well, you also take medicines by the mouth for those things, don't you? *A.*—There are one or two drugs. There is a drug called Goat's-rue or galega which has a reputation for doing that sort of thing.

Q.—And Heminal? *A.*—What?

Q.—Heminal? *A.*—Heminal, that is an iron preparation.

Q.—It is a hemoglobin preparation, isn't it? *A.*—Yes.

Q.—And it is used to develop the bust? *A.*—Why, it is used to improve the quality of the blood. If a woman was anemic, why, I presume it would have that effect.

Q.—Didn't you testify it was used to develop the busts. *A.*—Why, not to my knowledge. It is a blood remedy. If I testified to anything like that it was in some other connection, of which you have not given me the distinction. You have picked that out and not given me what goes before and of what follows.

Mr. Hough: (Reading)—"I show you also two other prescriptions marked 2-B and 1-B? *A.*—2-B is heminal, three grain tablets.

"What is that prescribed for? "*A.*—Heminal is practically a Parke-Davis preparation. Made for the blood. It is a hemoglobin preparation and contains iron and is prescribed to enrich the blood. One-B contains extract of galega, one and one-half grains, calcium lacto phosphate, two grains, and oil of fennel, one-tenth grain. This remedy is used to develop the bust and to cause an increase in the quantity of milk in a nursing woman."

The Witness: A.—That applies to that latter description. Yes, sir, I think that is all right. That is what I stated, and is what I still believe.

Mr. Hough: Q.—Well, that is proper to give to a woman who is nursing, isn't it, to develop the bust? *A.*—Galega—why, it has a reputed action in that way. It is reputed to be able to increase the size of the bust.

Mr. Hough:—Well, didn't you say—I will read further: (Reading):

"*The Assistant Attorney General:*—Is it proper to give that to a woman who is not nursing?"

And the witness (meaning yourself). "*A.*—Yes, your Honor, it is."

Mr. Hough:—You made that statement, didn't you? *A.*—Well, I have just stated it is reputed to have a good effect.

The witness was then asked concerning his testimony at Washington regarding the use of certain drugs for restoring sexual function on the basis of a filled out blank sent in by the patient defining his condition.

Dr. Adams defined his understanding of uterine tonics and uterine sedatives. He had used liquor sedans in the past because it contains hydrastis, which he considers a valuable drug. He knew the amount of alcohol in this preparation. He gave it three times a day, but did not consider it wise to place it in the hands of a patient. Ordinarily he used no treatment at the time of the menopause. As a rule he used sedatives to allay nervous irritability. It was brought out at Washington that the witness had answered that he considered the use of the mixture under the name of Mother's Cordial highly beneficial to a woman in the change of life period.

The witness then discussed the composition of this preparation further with reference to its alcohol content and stated that to his knowledge it need not necessarily have alcohol.

Q.—Well, at any rate that medicine, in your opinion, would be highly beneficial to women in change of life period? *A.*—Why, I think there are some valuable drugs in that prescription, yes, sir.

The Court:—You mean generally, in the absence of any symptoms whatever? *A.*—Oh, no, no. If they need it. If there is a need of medicine. If she did not need medicine, if there are no symptoms, it should not be given.

The Court:—I mean symptoms other than the normal symptoms of change of life? *A.*—If she has just the normal change of life she should not have any medicine. It is not indicated.

Mr. Hough: Q.—Well, the change of life in a perfectly normal woman, of course, is not—I mean it is purely physiological? *A.*—Yes, sir.

Q.—And the same is true of menstruation, and the same is true of puberty, and the same is true of pregnancy, isn't it? *A.*—True.

The witness stated that it was his opinion that 75 per cent. of the women go through the menopause without trouble. About 75 per cent. of all women are apt to have simple nervous manifestations which do not need any particular treatment. It was brought out that at Washington the witness stated: "I think in fully 75 per cent. of the cases this medicine 'Mother's Cordial' would be beneficial."

Q.—Well, you made that statement, didn't you, that 75 per cent. of the cases; in 75 per cent. of the cases it would be beneficial? *A.*—Well, that was asked in regard to that particular tea, and I don't see why that should not be used.

Q.—It is a medicine, isn't it? *A.*—Yes.

Q.—And you would not give medicines when they were not needed at all, would you? *A.*—Well, I don't believe in giving medicines where they are not needed. But that is about the possible use of such a preparation.

Mr. Hough:—And the Assistant Attorney General then said: (Reading)

"In old women after change of life?" And you replied:

"If they had any female trouble, yes, your Honor."

"*The Assistant Attorney General*:—They may have female trouble which is not amenable to treatment of that kind?"

"*The Witness*:—This happens to be treatment which practically is indicated in almost every case."

The Witness: A.—Well, it is all right. It is harmless.

Mr. Hough: (Continuing reading)—"Just think of that wide range of possibilities in that jurisdiction. It is soothing and there is an eliminative treatment and a gentle cathartic. There is a whole drug store in that."

The Witness:—I think that is right.

Mr. Hough: Q.—And, Dr. Kebler then said to you: (Reading) "What good would it do in ovarian troubles?"

"*The Witness:*—I think it would allay the pains. Jamaica dogwood and those remedies—just turn to the uses of them. That would be an ideal symptom for Jamaica dogwood. It is soothing and quieting."

Mr. Hough:—Is that correct? *A.*—I think that is right.

Mr. Hough:—(Continuing reading):

"*Dr. Kebler*:—How would they help in tumor or in prolapse of the uterus or lots of other things?"

"*The Witness*:—No, just limit me to one at a time. Take cancer. Of course, by their method you would soon eliminate cancer, because that is a disease which would put that woman beyond reach of this condition, but here is the eliminant medicine and the medicine to gently relieve the bowels and the medicine which would soothe and quiet the part. It might be argued that delay in this matter would put her beyond the pale of health, that delaying treatment by such a method as this would remove her chances. I will say this about cancer, that any treatment of this sort over the time it extends, if it was unrecognized, it would certainly delay the case some, but I do not think practically we ever get hold of cancer of the womb until they are pretty far advanced. I think that is where we are all weak and a large proportion of cancer of the womb cases that have come to us have gotten beyond the operation stage by the time we reach them. But this treatment will never replace surgery in cancer of the womb."

Mr. Hough: Q.—You made that statement, didn't you? *A.*—I think that is true, that cancers come to us so far advanced—I mean speaking as a general physician—that cancers come to the office in a majority of cases so far advanced that they have to be simply relieved. That the hope of cure is by. That is the one thing we all are hoping for, to get at these cases early, and to recognize them so we can do some good.

Q.—Now, then, did you say also that "it would be useful, this medicine, if it was inoperable cancer. It would be useful in any kind of cancer, but if it would in any occasion delay it would not be useful in that instance"?

The Witness: A.—Why, that is true. If it would delay the recognition of cancer in any way it would be absolutely wrong.

Q.—But you also stated that you thought that would be true in a very small proportion of cases? *A.*—Well, because I—I stated that if they had cancer, I thought they would go to the doctor, and the doctor would recognize it.

Q.—You stated that would be a very small proportion of cases, didn't you? *A.*—Yes, because they would go to a doctor; it would be so serious they would go to a doctor and have it recognized.

Q.—You use medicine for apparently opposite conditions, don't you, the same medicine? *A.*—Well, there are a few drugs that—

Q.—Just answer that question? *A.*—Yes, there are a few drugs that will act in apparently opposite conditions.

The witness was then asked concerning empiricism in medicine and the distinction between "patent" and proprietary medicines. He stated that for some time he has been connected with the manufacture of proprietary medicines which were for sale to anybody that would buy them. The witness stated that it is a question of dispute whether all proprietary medicines are ethical or unethical.

REDIRECT EXAMINATION BY MR. T. J. SCOFIELD

On redirect examination Dr. Adams stated that he would not give a medicine containing alcohol to a pregnant woman with Bright's disease because it would be dangerous. He stated that digitalis is a medicine which may act in opposite conditions, meaning at the same time a heart sedative and a heart tonic. A uterine sedative which will keep the womb quiet may give the blood vessels sufficient time to nourish the womb and remove the waste, and in that sense it may be considered a tonic.

RECROSS-EXAMINATION BY MR. HOUGH

The witness testified that even though all the alcohol given to a pregnant woman with Bright's disease were oxidized it still would have a bad effect because of its action on the

nervous system and because it adds a poisonous drug to the system. There is more work thrown on the kidneys because of the ash produced by the cells in oxidizing alcohol.

TESTIMONY OF DR. G. M. GODDARD

Dr. G. M. Goddard was called as witness for the defendants.

DIRECT EXAMINATION BY MR. LOESCH

Dr. Goddard testified that he resides in Waxahachie, Texas, where he has lived for nearly four years. He has practiced medicine since 1890; first in Van Zandt County, Texas, later in Ovilla, then in Oak Cliff and then in Boyce. Later he practiced in Taylor County in West Texas and then moved back to where he is now living. He was graduated from the Kentucky School of Medicine, Louisville, Ky., in 1895. He has had several cases in which Wine of Cardui figured. The first was Mrs. W., whom he treated in 1892. She was suffering with uterine hemorrhage and painful menstruation as well as other pains accompanying these conditions. He ascertained from her that she had been in ill health with dysmenorrhea and hemorrhage for three or four years, and that she had been taking Wine of Cardui almost incessantly. Sometimes she would consume a bottle in a day. Mrs. W. was about 35 years old.

The witness then mentioned a Mrs. D., whose condition was similar to that of Mrs. W., only not so exaggerated. He stated that she had been taking Wine of Cardui a little more than a year without any improvement. He gave her practically the same treatment that was given to Mrs. W., an antimalarial treatment, packing of the uterus with gauze. She became well. He diagnosed her condition as malaria with hemorrhage. He had seen Mrs. D. pour one half or two thirds of a teacup of Wine of Cardui and drink it. This case was also in 1892. When he was living at Walton Mrs. D. was about 30 years old.

The next case was a widow, Mrs. B., who had a similar condition. He gave her iron, quinin and arsenic in pill form and she recovered. She had been taking Wine of Cardui for about a year, and claimed that it did not do her any good.

The next case was a step-daughter of a man named Mr. L. Dr. Goddard attended her in confinement. At that time she had puerperal convulsions. She said she had been taking Wine of Cardui since the third of fourth month of her pregnancy because of headaches and swelling of the feet.

The witness then mentioned the case of Mrs. Du. She had prolapsus and severe hemorrhage at each menstrual flow and at each time she would have to go to bed. He advised operation, to which the patient would not consent. He used tampons, ichthyol and glycerin, but did not do much good. The patient told him she had been taking Wine of Cardui for three or four years off and on. She also stated that she had not obtained any relief from Wine of Cardui.

Q.—What was your next case, Doctor? *A.*—The next case I had was a Mrs. J., who had a case of gonorrhea. She had been taking—she had had the gonorrhea about three months before they consulted me, and had been taking Wine of Cardui during the time. Now, she didn't know that she had gonorrhea, and doesn't know it to this day. She was inoculated by her husband, infected by her husband. I was treating her husband at the time and cautioned him about his wife. She contracted the gonorrhea from him, and had had it for about three months before they came to me, and she stated that she had been taking the Wine of Cardui during this time, thinking that it was the change of life working on her, and that was her condition. She had a real bad case of gonorrhea when I saw her.

Q.—Did you treat her so as to produce a cure? *A.*—Yes, sir. Well, I got her in much better condition. Now we thought she was cured, at least.

Q.—How old a woman was she? *A.*—She was about 40—she was between forty and forty-five years old. Really I believe 42 or 43 years old.

The next case was Mrs. J. B.—a young woman with a gonorrheal infection. She suffered with pain, burning sensation and discharge. In this case also Dr. Goddard had been treating the husband. The patient had been taking Wine of Cardui for two or three months, but it did not do any good. If taken over a long time he believed it seems to aggravate the condition.

Dr. Goddard stated that the patients told him that the longer they take it the more they take of it and the worse the conditions become.

The next case was that of Miss Du.—daughter of Mrs. Du. previously mentioned. She suffered from delayed menstruation. She had been taking Wine of Cardui more than a year without benefit. She was about 19 years old. She had malaria and was given antimalarial treatment and recovered.

The next was the case of a Mexican girl, the daughter of a man named Mr. P. She was pale and anemic, had a cough and had never menstruated. He diagnosed the case as tuberculosis and the patient died of this condition six months later. She had been using Wine of Cardui for two years. They told Dr. Goddard it had done no good.

Q.—What was the next case, Doctor? *A.*—Another Mexican girl. She was seventeen years old. That was just about the same case as this one. The Mexicans were all in a bunch, they were a bunch of cotton pickers. She came to me about two or three months later than the first one did, and with just about the same history, only she had been taking Wine of Cardui a year, she claimed. That is the history she gave me.

Q.—What was her condition? *A.*—She had tuberculosis, and died in six or eight months or a year, something like that, after I saw her.

Another case was Miss M.—a young lady about 18 years old. She gave the history that she would menstruate about three or four times a year. She had been taking Wine of Cardui about four years. This patient died of tuberculosis and had no beneficial effect from the Wine of Cardui.

The next case was Mrs. W. C. S., who suffered with frequent miscarriages. She had taken Wine of Cardui but it had not done her any good. He advised her to quit taking Wine of Cardui. About a year and a half later he waited on her in a full term confinement.

A Mexican woman came to Dr. Goddard with a baby 3 weeks old. She had taken Wine of Cardui during pregnancy with a view to making her labor easy. After the baby was born she had an abscess of the breast. She was taking Wine of Cardui and had a high fever. The abscess was opened, the pus withdrawn and the patient had no further trouble.

Q.—What is the next case you have, Doctor? *A.*—Well, I had a case of pellagra, a negro, A. K.'s wife that had pellagra for quite a long time, a year or better, and she had an awful bad prolapse before she died. The womb was protruding clear out. And she had been taking the Wine of Cardui during the time, this period of about a year before I saw her, with a view that she had some female trouble, that was what she thought. But she had pellagra and died of pellagra.

Q.—To what extent had she been using Wine of Cardui? *A.*—She had been using it steady for—for about a year—the history they gave me.

Q.—Did she tell you what doses she took? *A.*—She had been taking it in pretty big doses; she used to take a third of a teacup full.

Q.—You saw her take it? *A.*—I saw her drink it out of a bottle.

The wife of a negro named W. H. was suffering with an enlarged uterus and would have severe cramps at the time of menstruation. Dr. Goddard testified that he advised an operation, but the patient would not have it. He saw her pour Wine of Cardui into a cup, add water and drink the mixture. She stated that she had been taking it for two or three years, but it did not do her any good.

The next case was Mrs. W. She gave a history of scant menstruation and wanted tonics. She was married and was anxious to become pregnant. She had been taking Wine of Cardui for more than a year. The patient refused to be examined. Dr. Goddard was again called about three months later and he made an examination and found the mouth of the cervix tight. He dilated and curetted the uterus. About four or five months later the patient became pregnant and was later delivered of a full term child.

Dr. Goddard was then asked to describe instances in which Wine of Cardui was used as a beverage.

Q.—Well, tell the instances where you know of it being used as a beverage. *A.*—Well, I had a man by the name of Nelson that came to me up in Oklahoma Territory—it was a territory then. He was a man who was addicted to the whisky habit, and he could not get whisky at all times in his section of the country, and he used to use—he got to drinking Wine of Cardui; so he stated. And when he came to me, he was—came to me for treatment for the alcoholic habit—alcoholism.

Q.—How long had he been drinking Cardui? *A.*—I believe he told me that he had been drinking it for better than a year—not all the time, now, but when he could not get whisky.

Q.—And he used it—didn't he state to you that he used it for three or four years?

Mr. Walker:—Well—what's the use?

The Witness:—I don't call that to mind. He had been drinking for longer than that, but now—I don't—but he had been using the Wine of Cardui for a year—for about two years.

He also recalled a case of a man named B. R., who drank lots of whisky; when he could not get whisky he would drink anything he could get hold of.

THE COURT:—Now, is this what you know of your own knowledge, or as his general reputation?

The Witness:—I know that he has drunk different "patent medicines," your Honor, and he has come to my house just as drunk as you ever saw a man, most, drinking Wine of Cardui. He would have it in his buggy. I have seen the bottles in his buggy. I have taken him out of his buggy—taken the man out of his buggy and put him on a pallet on my porch, and kept him there half a day at a time. I have done that, I will say, as many as half a dozen times; till he would get sobered up. I have seen him drink a bottle of Wine of Cardui at one time; just take the cork out of the bottle and clean it up at one drink.

Dr. Goddard testified that he has also seen a man named W. who would drink large quantities of Wine of Cardui. He has seen him empty a bottle in three or four drinks.

Dr. Goddard then described the case of B., who was addicted to morphin and would also drink whisky when he could get it. He would drink Wine of Cardui.

He also described the case of S., who lived in a dry territory. He would drink whisky when he could get it, but when he could not get it he would drink Wine of Cardui.

The latter cases were treated in a sanitarium for drug addicts which Dr. Goddard conducted.

Q.—Have you an instance of any woman using it as a beverage? *A.*—Yes, sir. Some of the women—patients that I would have.

Q.—Mention them? *A.*—Why, I had one, an old lady—I don't remember her name. Her daughter lived in Dallas, and brought her over to the sanitarium; and I could not give you her—I don't know her daughter's name. They lived—that is, the daughter lived in Dallas. And in giving her history, she said that she had been back some years before that—that woman was then about 55 years old—that she was using Wine of Cardui. She was taking morphin, and at the same time was using—she would drink Wine of Cardui. She said that when she—back before her menstrual period—I mean, before her menopause—that she suffered so that she got to taking Wine of Cardui to tide her through her change of life, as she gave it to me; and it got to where she would not—she could not—she got no relief from it, and she would keep increasing the doses—and she got to using—mixing morphin with it. She would take morphin in small quantities with her Wine of Cardui to get the ease—to get relief; and from that she went on and got in the habit of using morphin, and when she would run shy of morphin—that is, could not get enough of it, or she did not have as much as she wanted or needed, she could take the—increase the dose of Cardui, and could get along on less morphin. And her daughter—she or the old lady, stated that she would take the Cardui, that it would make her dizzy when she would take big doses of it, it would make her dizzy, make her head swim. She did not say she was getting drunk on it, or anything like that, but that is the statement that she and her daughter both made to me in my office.

Q.—Did you ever see her drink it? *A.*—Yes, sir.

Q.—That is, drink Cardui? *A.*—Yes, sir. I saw her drink Wine of Cardui.

Q.—How much have you seen her drink at a single time? *A.*—I have seen her drink a third of a bottle.

Q.—How long was she under your care, Doctor? *A.*—She was there about a month with me. I usually kept them about a month.

Dr. Goddard also described a patient—wife of a traveling man—who was a morphin patient and had been using Wine of Cardui for painful menstrual disorders, and later began to take morphin. This woman would drink as much as one-third of a bottle at a dose.

Another woman named Mrs. S. would pour Wine of Cardui into a teacup, add water, and drink the mixture. When drinking this mixture she could get along with less morphin.

Another patient, a woman from Denison, Texas, stated that she commenced using Wine of Cardui to help her through painful menstruation and finally drifted to mixing morphin with it. She would drink it out of the bottle, taking three or four tablespoonfuls, perhaps, at a dose.

Another case was a woman from East Texas with the same history. This patient would turn up a bottle and take two or three swallows from it.

The witness stated that he has been in Chicago several weeks, perhaps three weeks or more, and that he had remained in Chicago since the adjournment at Mr. Loesch's request.

The court was adjourned until 10:30 o'clock Wednesday, May 3, 1916.

May 3, 1916, Morning

The Court met pursuant to adjournment. Dr. G. M. Goddard resumed the stand.

CROSS-EXAMINATION BY MR. WALKER

Dr. Goddard testified that he received a letter from Dr. Taylor, secretary of the Texas State Medical Association. He met Dr. Heizer at a meeting of the Southern Medical Association in Dallas. He testified that Dr. Heizer asked him if he knew of any people who used or drank Wine of Cardui and requested him to look up the matter.

Dr. Goddard was cross-examined concerning the names of the persons mentioned in the direct examination. The witness arrived in Chicago about March 21 and has been here about five weeks. He is receiving his expenses and a per diem. He was cross-examined concerning his various locations in practice and his connection with the sanatorium at Oak Cliff. He was then cross-examined concerning the names of various people whom he treated at the sanatorium. He testified that he had made no special endeavor, after he was asked by Dr. Heizer to do so, to look up the persons mentioned in the direct testimony.

Q.—Will you tell the jury how it is that you remember their history, when you cannot remember their names? These people from the various points of the compass in Texas? *A.*—These people would come in and, getting the history of them—why I just call to mind from memory we would make a record of the case. The old lady in using the morphin, she was the first patient that I had gotten hold of that come to my institution—

Mr. Loesch:—A little louder.

Mr. Walker:—Speak out loud, we don't hear you.

A.—The old lady that came was the first woman that come to my sanitarium that gave a history of having used—having been using Wine of Cardui and went to taking morphin. That first attracted my attention to it in making out the history of these. I don't just—it is just the particular condition of the case is all that I can call to mind that makes me remember it. I remember these distinctly, the morphin patients, and having the stuff in their grip calls it to my mind. Now, as to just any special thing that just calls to mind—without quite a number of patients that we had—we had quite a number but these were the only ones that used the Wine of Cardui in connection with morphin.

Q.—The list that you made up of those names, when did you make it up, in reference to your coming to Chicago? You say you made it up before you came? *A.*—Well, I don't know that I could—that there was any certain day I had it. I made out the list of names, some of these—which do you mean, do you mean all of the names, or do you mean—

Q.—Was there any of them that you recollect that you made out after you came to Chicago, and heard some of the testimony in this case? *A.*—No, sir.

Q.—Then I take it that all the names that you have mentioned to this jury were listed by you before you came to Chicago, and after Sizer saw you, is that right? *A.*—Yes, sir.

Mr. Loesch:—Heizer.

Mr. Walker:—What did I call him?

Mr. Loesch:—You just leave off the "Doctor" and say, Sizer, instead of Heizer.

Mr. Walker:—Yes, Sizer examined the evidence on the drunks and the doctor got them.

Mr. Loesch:—Sizer and Heizer, lawyer and doctor.

The Witness:—Sizer never examined them.

Mr. Loesch:—Well, they are here.

Mr. Walker:—Yes, and they are some specimens to be proud of.

Dr. Goddard was then again repeatedly cross-examined in an endeavor to recall to his memory the names of the patients treated in the sanitarium. The witness then testified on cross-examination as to the various places in which he practiced from 1890 up to the present time.

Q.—Can you give me the name of any one person that you ever saw drink Wine of Cardui, or any woman that gave you in her history that drank Wine of Cardui, that is now living anywhere that you can tell us the location and name of? *A.*—I can tell you where they were when I saw them last. I do not know where they are now.

Q.—But I am asking you about now? *A.*—No, sir.

Q.—Is there any one whose name you can give us that is living, who used Wine of Cardui as a beverage, or any woman who gave it as a part of her history, that you can tell us, that you know was living and where the person lived when you first met Heizer? *A.*—No, sir, I don't know where they lived.

Q.—When was the last person, the date now, that you ever saw drink Wine of Cardui, as a beverage, or any you have named? The last date? *A.*—That was when I was running the sanitarium, 1900 and 1901.

Q.—That is the last date of any man you ever saw drink it as a beverage? *A.*—Yes, sir.

Q.—Give me the name. Was that man or woman? *A.*—Both.

Q.—At the sanitarium. One of them was an alcoholic, and the other ones were morphin fiends when they came to see you? *A.*—Yes, sir, there was two of them, two of them.

Q.—Now— *A.*—Wait a moment, what was that you asked me?

Q.—I say, one of them was an alcoholic, S. from Oklahoma? *A.*—B. from Oklahoma. B. was a morphin fiend, and the rest of the men were alcoholics. You have just got it reversed.

Q.—When was it that you saw N? *A.*—N. was in 1902.

Q.—Where was that? *A.*—That was in my house. He called on me to treat him for alcoholism, and he stayed in my home.

Q.—At which place were you then living? *A.*—I was living in Oak Cliff then, and I was running the sanitarium.

Q.—Did he live in your house, while he was there? *A.*—He had a room in my house, yes, sir, boarded with me.

Q.—S.— *A.*—N., his name was, N.

Q.—Did any member of your family see N. drink Wine of Cardui? *A.*—I don't know about that; I don't suppose they did.

Q.—Is there any other member of your family here? *A.*—No, sir.

Q.—Any of these cases that you have named, can you give me the name of any other individual on earth that saw them drink Wine of Cardui as a beverage, any one of them? *A.*—All the people now that you are talking about?

Q.—Any one of them. I am speaking now of the people that drank it as a beverage. Can you give me the name of any one that you have named, of any person? *A.*—Well, the help that I had in the sanitarium might have seen them. I do not know whether they did or not. I could not say for that.

Q.—As far as you know, nobody else but yourself ever saw these people drink Wine of Cardui? *A.*—No, I do not know that they did, not around me, not only the ones that was in the sanitarium.

The witness was then again cross-examined concerning the names of the patients whom he treated who took Wine of Cardui.

TESTIMONY OF DR. C. HUGH M'KENNA

Dr. McKenna was called as a witness for the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Dr. McKenna testified that he has resided in Chicago for sixteen years. He devotes more attention to surgery than to general medicine. He graduated from the Rush Medical College in 1903. He then spent a year as intern and assistant to the late Dr. Nicholas Senn, later for about four years was assistant to the late Ferdinand Henrotin. He was abroad in 1909 and again in 1910. In 1909 until about 1913, he was associated with Dr. John B. Murphy in the capacity of associate chief of St. Joseph's Hospital. In 1913, Dr. McKenna was appointed surgeon in chief, and president of the staff of St. Joseph's Hospital.

In the treatment of diseases he uses both mechanical and medical means if indicated. Dr. McKenna testified that he has had no experience with cnicus or carduus benedictus.

Q.—Now, doctor, will you tell the jury what experience you have had in the use of viburnum prunifolium, and what conclusions you have reached as a result of your experience with it, as to its therapeutic value? *A.*—Early in my practice I used viburnum prunifolium, and I used it particularly in the extract, in the dry form. I should say that I used it over a period of probably five years, and owing to the fact that I had no results from it at all, I discontinued its use.

Q.—Now, when you say you used it in the dry form, what do you mean by that, doctor? *A.*—Well, I mean that, if I remember correctly, I had Burroughs & Wellcome, an English firm, put up viburnum prunifolium in the form of tablets, used in connection with small doses of the tinctura opii camphorata, also in a powdered form, making it more easy to be used by the patient.

After using it for a time, I figured that the only effect I got from it was the paregoric and then trying the drug alone, I got no effects and discontinued its use.

Q.—Then in your use of viburnum prunifolium, you did not use it in the form of a fluid at all? *A.*—Well, I might say that I probably have written ten or a dozen prescriptions of the fluidextract of viburnum prunifolium.

Q.—But, with the exception of those prescriptions, your experience in the use of the drug, was in the dry form? *A.*—Yes, sir.

There was then asked the witness a hypothetical question similar to that asked of previous witnesses and he stated that he had an opinion as to the physiologic action and therapeutic value of the hypothetical medicine.

Dr. McKenna testified that such a medicine would not be proper scientific treatment for the various uterine displacements.

Q.—Why, not, doctor? *A.*—It would have absolutely no effect upon the organ. They are out of place. That is to say, retroversion, retroflexion, anteversion and anteflexion, and if they are caused by certain inflammatory conditions, pressing down upon them, such as pyosalpinx or any other pathological conditions within the pelvis, it would be absurd to feel that any medicine would have any effect upon these conditions.

There was then described to Dr. McKenna an experiment similar to that described by Dr. J. Clarence Webster and he stated that such an experiment would confirm the opinion which he had expressed. Such an experiment would cause him to believe that the hypothetical medicine was not a uterine tonic. Dr. McKenna testified that puberty, pregnancy, the lying-in period and the menopause are normal physiologic conditions and that in a large majority of cases they require no medication whatever. The menopause is a very dangerous time to give any medicines that might mask the symptoms of some pathologic condition which might occur.

Q.—I say, but going back to the age of puberty, you say that it is an impressionable period in the history of a girl, and that it is the one period particularly when no alcohol should be administered. Now, why is that, Doctor? *A.*—Well, it is at a time when the young girl is going through a change that psychologically, or so far as the question of her mental makeup is concerned, she should not receive anything that is of a stimulating character, because of this change through which she is passing at that period.

Q.—What would be the effect, if anything, of the alcohol contained in such a medicine at such a time, used as frequently as is advised here, three to four times a day, three times a day, upon the question of the excitability of the girl's passions? *A.*—I did not catch the last part.

Q.—Upon the question of the excitability of her sexual passions? *A.*—I said that at that time young girls are of a very impressionable age. They are very apt to acquire a habit, and particularly at a time when a new period has come into their lives from the standpoint of the change in the sexual organs and it is very likely of course to stimulate them markedly in that respect.

Dr. McKenna testified that menorrhagia and metrorrhagia are symptoms of disease. In explaining he described:

Q.—Now, when you say they are symptoms of disease, what do you mean by that, doctor? *A.*—I mean that there is a varying number of abnormal conditions occurring in the female organs which may cause a woman to flow; that may cause an increased flow at the normal period, the monthly period, or it may cause a flow between the periods. The conditions that bring about this flow are varied. They come on sometimes very insidiously, without a woman noting any condition herself at all. I might refer to a patient that I have had in my experience within the last few weeks. A woman 42 years of age.

Q.—Have you got anything here to illustrate that case? *A.*—Yes, I have.

Q.—Will you please produce it, bring it up here.

The Witness:—May I stand up?

THE COURT:—Certainly?

Mr. T. J. Scofield:—Doctor, stand on this side (the witness produced three glass jars, each containing certain specimens hereinafter referred to and described, and the said jars and their contents were within view of the jury.)

The Witness:—This woman that I refer to is 42 years of age approximately. She came into my office at 104 South Michigan Avenue, about two and a half weeks ago. Practically the only history that she gave was the history of flooding, as she expressed it. She had no pain, no pain referable to her pelvic organs.

She said that she had been flowing for a matter of over two weeks, and was flowing so heavily on that day, that she did not wish me to examine her, as she expressed it, and I told her that under those circumstances that it would be well for her to go somewhere where she could be put to rest immediately.

I recommended that she go to the hospital, which she consented to do. I examined her at the hospital. However, she did not go to the hospital directly that night, but rather came there the next morning, and under the proper aseptic conditions, I examined that patient, and found a small submucous fibroid, which is a small growth, presenting in the canal of the womb; presenting somewhat in that manner (the witness illustrates by encircling the end of his little finger with the first finger of the left hand so that the tip of the little finger protrudes about one quarter of an inch) through the opening of the canal, leading down from the womb.

Upon further bimanual examination I found that she was suffering with a good sized fibroid, as represented in this jar. (Referring to one of the jars hereinbefore produced). Now, the only symptom that that patient complained of was the question of flooding. She had no pain; no other symptom at all, and I felt that it was a very important case, particularly from the standpoint of showing that there is absolutely no way in which a woman can tell whether that is an operative case or not.

I present here also a second case that was operated on; pathological number 5070, was operated on April 15 of this year; the fibroid of the uterus and the small submucous fibroid of the cervical canal. I present also a second specimen—

Q.—Doctor, is this the fibroid here, taken away from the woman? (Referring to contents of one of the jars) *A.*—That is the fibroid. She was operated on October 15. (The witness apparently intended to say April 15.)

Q.—What is her condition now, Doctor? *A.*—She was discharged today feeling perfectly all right.

Q.—Go ahead? *A.*—I present also a second specimen. This represents what is known as a double dermoid cyst of the two ovaries, and was operated by me on March 14 of this year.

Mr. Walker:—That is the middle one? (Referring to the position of the jars.)

The Witness:—That is these two. This is the right ovarian tumor, and this is the left ovarian tumor. (Indicating contents of jar No. 2.)

Mr. T. J. Scofield: Q.—The same patient? A.—The same patient. Now, this woman I saw on the morning of March 14 and the only symptom she had, referable to her pelvis, was slight metrorrhagia, or flowing between the periods. She had some cramps in the abdomen, but so far as the pelvis was concerned, her symptoms were a slight metrorrhagia.

Now that patient was examined, and it was decided that it was one of two conditions: either a strangulated or twisted pedicle of a hemorrhagic ovarian cyst, or an ectopic pregnancy.

She was immediately sent to the operating room and operated and we found blood flowing freely into the abdomen from a twisted ovarian pedicle, the upper half of the tumor being made up of what is known as dermoid and containing hair, and in this instance some bone and various other tissues, which comes about in conditions (if we bring it down to a question of the development of the fetus) where certain layers come together while the fetus is still in utero or within the womb and there is malformation at that time.

Now this, on the right side, was a mixed dermoid and hemorrhagic cyst and on the left side, was a large tumor taking up the entire ovary. The entire ovary—in fact, there was not any true ovarian tissue at all. As I stated before, this case was ruptured and was bleeding into the abdomen, and if it had not been recognized within a period of a day or such a matter, she could very easily have bled to death.

Now the patient was immediately operated and made a good recovery and left the hospital I think in a period, I think, of about three weeks or three and a half. I do not know the exact date. The number of the second set of specimens is 5020. I gave the first one, 5070, I guess, did I not?

The Reporter:—Yes, I think so.

The Witness:—The second one is pathological number 5020. The history and names of these patients are here for anybody who wants them.

Mr. T. J. Scofield: Q.—Now, doctor, let me ask you whether or not these cases that you have just been describing are illustrative of many other cases which you have had in your practice? A.—Many, and I—

Q.—Now, I suppose—go ahead. A.—and I particularly wish to point out to this jury the fact that it is impossible not only for any patient suffering with the condition as described in the second set of specimens there, namely, the hemorrhagic cyst of the ovary, to determine what that condition is, but it is practically impossible for a medical man after he has given the patient the most searching examination, to say whether that is an ectopic pregnancy, by that I mean, a conception without the womb, or a hemorrhagic cyst, so that the question of stating that certain conditions are not treated because they are operaive conditions—here is a condition in point, that nobody but the doctor and under the most searching examination can tell what the condition is.

Q.—Now, doctor, as I understand it, you, as a surgeon, and as a doctor, could not diagnose the condition from the symptoms which the patient disclosed to you? A.—In no way.

Q.—And as to at least one of these cases, you, as a physician and a surgeon, could not with certainty diagnose the exact condition there after examination, until after you had opened the abdomen? A.—In the case of the second case, that is the hemorrhagic cyst of the ovary, no.

Q.—You were able to determine— A.—I expected that it was an operative case, and that it should be operated immediatly.

Q.—Now, how could you tell that it was an operative case, from what the patient told you? A.—No, from my examination, which consisted in the bimanual examination, placing one hand in the uterus of the patient, or in the vagina of the patient, and the other hand over the abdomen, and examining in what we call a bimanual way, and in addition to that, making the necessary laboratory examinations, such as the blood count, that go with that type of examination.

Q.—Then, if I understand you aright, doctor, in the treatment of those two cases, you did by your examination discover abnormal conditions that the symptoms as manifested, or told you by the patient, did not disclose? A.—Exactly.

Q.—So far as the complaints—

Mr. Hough:—I do not see that this is material.

The Court:—Which?

Mr. Hough:—His question, and the answer.

The Court:—I do not think it is myself, but nothing was said about it, until it got by us.

Mr. Hough:—I did not catch it.

Dr. McKenna testified that the hypothetical medicine would not be a proper scientific treatment in cases of menorrhagia and metrorrhagia.

There was then read to him a statement from the Ladies Birthday Almanac concerning flooding. He stated that it was absolutely incorrect and misleading to state that:

> "Flooding is always a sign of danger. The best treatment is complete rest in bed, and Wine of Cardui three times a day."

Dr. McKenna then described other conditions such as sarcoma, or cancer, which might bring on similar symptoms as those of the cases previously mentioned. These symptoms might also be produced by inflammation of the fallopian tubes. He stated that a medicine similar to Wine of Cardui would do no good in cases of menorrhagia or flooding.

There was then read to Dr. McKenna a statement from the Ladies' Birthday Almanac and he was shown a picture from the pamphlet illustrating a woman with her hand at the small of her back. He was asked to state to the jury the conditions which might arise within a woman which might be the underlying cause for such a pain in the back as the picture and the paragraph described. He stated that there were many conditions. He mentioned particularly tuberculosis of the spine and metastatic infection of the intervertebral spaces. He treated cases of this kind by removal of the focus of infection. An early recognition of the condition is necessary. He mentioned also the mechanical treatment by immobilization; also the use of vaccines. He mentioned the use of the steel corset in the treatment of metastatic infection of joints. He also described in general the treatment of tuberculosis of the spine.

Mr. Hough:—Just one moment. Do I understand the witness to say that when a man or a woman has a pain in the back, that this is his condition?

The Witness:—No, sir, I did not say any such thing.

Mr. Hough:—Then this is immaterial.

The Court:—I thought it was immaterial. This is one of the things that may cause pain in this particular point in the back, shown in the picture.

Mr. Hough:—Anything can cause a pain in the back. I thought he said if any one had a pain in the back, they had to have this thing.

Mr. T. J. Scofield:—He did not say that, and from what you inferred it, I do not know. But he said that a pain in the back might be due to, or result from such a condition. Then I asked him what different conditions might produce such a thing and now he is answering.

Q.—Now, Doctor, let me ask you whether or not such a condition as you have been describing would produce the sort of symptoms of pain that has been described and read to you, from this Ladies' Birthday Almanac? A.—It would.

Q.—Would that case be a case that a woman could diagnose and determine herself the condition that you have described? A.—She could not.

Q.—Would that case be a case for medical, mechanical or surgical treatment, in its origin, and throughout the history of the case? A.—It would.

Q.—That is, you would use medicinal and mechanical means and possibly surgical means? A.—I would.

Q.—In what stages of that disease would you use medicine? A.—If, as I stated—

Mr. Hough:—That is objected to as incompetent, irrelevant and immaterial.

The Court:—It seems to me that the only important thing is to show that the doctor believes there are some disorders of women, that will show a symptom of pain in the back, and then give his opinion whether or not this hypothetical medicine, assuming that it is Wine of Cardui, will have any effect on it.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough:—I do not think that it is contended that Wine of Cardui will cure every pain or disease that a person might have.

Mr. T. J. Scofield:—As far as that is concerned, I am objecting to any statement by Mr. Hough as to what they claim or don't claim. Here is their advertisement.

The Court:—Counsel has a perfect right to disclaim always.

Mr. T. J. Scofield:—Yes, at the proper time, and under proper circumstances.

Mr. Hough:—The point is that the inquiry should be based upon the literature which says that this medicine might be the medicine which would do the good. It don't say that it would be absolutely.

Mr. T. J. Scofield:—This is based absolutely on your literature.

Mr. Hough:—It says it might be, don't it? You ought to base your question on that.

Mr. T. J. Scofield:—Well, let us read it and see what it says there?

Mr. Hough:—Go ahead.

Mr. T. J. Scofield:—(Reading.) "That is where the pain is, in the small of your back. It is terrible, nerve racking and unbearable. You just cannot work. Don't let it keep up. Stop it. Take a dose of Cardui, the Woman's Tonic. Lay down for a short rest. In a few minutes you will feel much better." You will feel much better, not might feel better.

"Take Cardui regularly for a few days. It will make all the difference in the world. Keep it up till the pain is gone, and you have got back your strength. Won't you thank Cardui."

Q.—Now then, Doctor, having heard —

Mr. Hough:—Will you finish the rest of that?

Mr. T. J. Scofield:—I will with pleasure, if you care to have it read.

Mr. Hough:—Why, yes.

Mr. T. J. Scofield: I read it to the jury. (Reading): "Yes you will." Will what? "Thank Cardui as thousands of others have done and are doing every day. Try this plan of treatment, it may be just what you need."

Mr. Hough:—It says, "It may be just what you need."

Mr. T. J. Scofield:—Sure.

Q.—Doctor, would you consider the hypothetical solution, which I have mentioned to you, proper treatment for such a condition as that which you have described? *A.*—I would not.

Q.—Would you consider, assuming that the hypothetical medicine and Wine of Cardui, are practically the same, that Wine of Cardui would be a proper scientific treatment for that condition. *A.*—It would not.

Q.—Would you think, Doctor, that the hypothetical solution or Wine of Cardui (assuming that they are practically the same) might be just what was needed for such a condition as you have described?

Mr. Hough:—One moment. Do you mean the pain in the back?

Mr. T. J. Scofield:—The condition that you have described?

Mr. Hough:—I object until that is made more specific.

Mr. T. J. Scofield:—The condition which produced the pain in the back, under the conditions which you have described.

THE COURT:—The objection will have to be sustained to that.

To which ruling of the Court the defendants, etc., excepted.

Mr. Hough:—We don't claim it will cure curvature of the spine.

THE COURT:—Ask the doctor as to whether this hypothetical medicine would be indicated for any kind of a pain in the back.

Mr. T. J. Scofield: *Q.*—Have you an opinion, doctor, as to whether or not this hypothetical solution, and Wine of Cardui (assuming that they are practically the same) are indicated for any sort of a pain in the back, such as has been described here? *A.*—I have an opinion.

Q.—What is that opinion? *A.*—That it would do no good.

Whereupon the further hearing of the case was adjourned until 2 o'clock p. m. the same day, May 3, 1916.

May 3, 1916, Afternoon

The court met pursuant to adjournment.

TESTIMONY OF DR. C. HUGH M'KENNA *(continued)*

Dr. C. Hugh McKenna resumed the stand for the defendants. He testified that he supplied to the attorneys for the plaintiffs the names of persons on whom he operated.

CROSS-EXAMINATION BY MR. HOUGH

Dr. McKenna testified that the first case on which he operated came to him direct and had not been under the care of any other physician. The second case was a ward case and had been under the care of Dr. A. A. Small, who had been treating her for rheumatism. Dr. Small discovered the dermoid cyst and called in Dr. McKenna to see the patient. The patient had not complained of any symptoms other than flowing of blood from the uterus and of pain in the abdomen. Dr. McKenna was shown the picture of a woman with her hand on her back and was asked whether the location of the hand pointed toward pain due to menstrual disturbances or whether to the conditions which he described.

Q.—Well, if a woman came to you and said she had a pain in her back, and she put her hand down there, would you first think of menstrual disturbance, or would you first think of this tuberculosis of the spine, or metastatic infection of the spine? *A.*—I would think of all the conditions that I know that might cause a pathological condition of the spine.

Q.—You mean you would think of all of them at the same time? *A.*—Yes, just in a general way, yes. I think that we are concerned with that situation in every case we see, and we must necessarily take them all into account; otherwise we are apt to run off at a tangent.

Q.—Now, is metastatic infection of the spine a very common trouble, or is it very rare? *A.*—It is common enough, and I think I can describe that best by saying that I have heard, in some of the leading clinics, the expression used that those cases come in in crops.

Q.—Come in in what? *A.*—Come in in crops.

Q.—In crops? *A.*—Yes.

Q.—Is that because they are suggested by the Doctor to the patient, or— *A.*—It simply means that they come in large numbers. They come at definite periods of the year; following certain infections that I described this morning—that inflammatory condition of that kind, of the spinal vertebra may be caused by infection to the nose and throat, and the fallopian tubes or the Bartholin glands, or the gall-bladder infection, or appendix infection—any of those; and, certain changes in the weather, and atmosphere is apt to stimulate.

Q.—Well, what is the best crop season, Doctor, for that? *A.*—I beg your pardon?

Q.—What is the best crop season for that? *A.*—As I said this morning—the question first is to determine—

Q.—Well, you said certain seasons of the year. What is the best season for that crop? *A.*—Well, I misunderstood your term when you said the best season. I would say the worst season. They come in, as a rule, shortly after the time that the crops are harvested; and they come particularly from the farming communities; and it is supposed that the kind of work that is done on the farm, all the lifting and bending and perspiring freely, and probably catching cold, has to do with the question of forming what we please to term as the locus minoris resistentiae, meaning the point of least resistance, and, consequently, the infection, being present in some of those places, is deposited in this point of least resistance, which, in these instances happen to be the joints along the vertebra.

Q.—Have you ever practiced in the country, Doctor? *A.*—No, I never have.

Q.—Are country doctors, as a rule, prepared or equipped to handle cases like that? *A.*—Country doctors—and I say this through my society connections — have done a great deal, ever since I have been in medicine, toward the question of perfecting themselves, so that they can take care of those cases in a scientific way. There is not anything that I have described, that they cannot carry out and are carrying out, as far as I know, in most of the country places.

Dr. McKenna was then cross-examined concerning the condition of the case in which the blood was flowing into the peritoneal cavity. He stated that if the patient bled for a day or two she would probably be dead from hemorrhages. He was asked to name other conditions producing pain in the back which were worse than those already named. He mentioned carcinoma and sarcoma of the spine and crushed spine.

PAIN IN THE BACK

Q.—Well, do you mean to say then that when a woman has a pain in the back she might have almost anything the matter with her? *A.*—Well, we must take the position, as examining physicians, that she might have any of these conditions, and I would say that it is very essential that we take into account all of these things, in order that we may not—although it might only occur once in a thousand times—miss that case, which, if taken in the beginning, might be saved, and a deformed spine saved.

Q.—Would you say that would be about the proportion in which those cases would occur, once in a thousand times? *A.*—No, I would not say that. I said, even in the case that it only occurred in that proportion. These cases occur much more frequently.

Q.—Well, how much more would you say? Twice in a thousand times? *A.*—I said that I believed—that I put it in a way that we could get a conception of it by saying that they come in in crops after the—particularly from the farming communities—after the harvest is over; and I think that gives you a very good idea of the frequency, particularly of the metastatic type of spine. That is a condition, of course, that had gone unrecognized formerly and treated as lumbago and different forms of rheumatism, and so on, until scientific medicines have put it on a very definite basis, and—

Q.—How late is that, that it has put it on a definite basis? *A.*—Well—

Q.—Recently? *A.*—Within the last ten or twelve years.

Q.—Now, taking the cases coming in crops, as you say; what would the proportion be through a year? *A.*—Well, what way do you mean?

Q.—Would the average—where a woman had a pain in the back—would there be one case in a thousand— *A.*—Oh, yes, very much—

Q.—Where it would be this metastatic infection of the spine? *A.*—Yes, it would be very much more frequent.

Q.—Two cases in a thousand? *A.*—Much more frequent than that, I should say.

Q.—Well, give me an idea; a hundred cases in a thousand? *A.*—I—it is rather difficult, because of lack of specific statistics at this time to say definitely what proportion of cases, or what the percentage of spinal pathological—or what percentage these make of the pathological conditions of the spine; but I would say that of the injuries or pathological conditions of the spine, that they are relatively frequent.

Q.—Well, what do you mean by relatively frequent; as many as ten in a thousand? *A.*—Well, I would say much more frequent than that—

Q.—As many as— *A.*—I do not know that I can give you the percentages.

Q.—You would say—

THE COURT:—Mr. Hough, I think the witness has made it pretty plain that he has no general statistics to go by. He does not know the number of women in the world that have backache, and he cannot know the number of people that have these particular disorders of the spine.

Mr. Hough:—How can he say it is general then?

THE COURT:—He has told you in general terms. Now, there is no use trying to get down to specific terms, because the witness says he cannot give them.

Mr. Hough: *Q.*—Do you say you are unable to give the percentage of cases? *A.*—I said very definitely I could not give the percentages;

and I doubt very much whether there are any compiled statistics on that line of surgery, at this time.

Q.—As a matter of fact, is it not very rare with this condition, when a woman has a pain in the back, in comparison with all the other conditions? *A.*—No, I should say it was not.

Dr. McKenna then stated that dermoid cysts are uncommon, relatively speaking. Hemorrhagic cysts of the ovary are not uncommon. Development of such growths might go on for a long time without the woman knowing anything about it. Dr. McKenna stated that physicians sometimes might operate thinking that a fibroid tumor was present when actually the patient was pregnant.

Q.—Do you know what is referred to as the Podsnapion plan of ignoring the function of menstruation? *A.*—The which?

Q.—The Podsnapion plan? *A.*—No, I do not.

Q.—You say menstruation at puberty is always physiological? *A.*—No, I do not say so.

Q.—In what percentage of cases would you say it is pathological? *A.*—Oh, I would say probably in the neighborhood of fifteen to twenty per cent.—something like that; in my experience.

Q.—Would you say that—or would you not say that amenorrhea, as a disorder of puberty, is very common? *A.*—No, I would not. I have so stated.

Q.—Is that stated upon your own practice and experience, or upon reading? *A.*—That is based upon my own experience and my associations with other men in clinics; in a general way on my knowledge of such conditions.

Q.—Would you say it was based in any degree upon the experience of others who have written medical works? *A.*—No, it is not based upon the—I said it was based upon my own experience and upon my association—as I learned it from other men in clinics.

Q.—Have you ever talked with Dr. J. Clarence Webster on that subject? Have you ever learned anything from him about it? *A.*—I have talked to Dr. Webster many times. I do not know that I have talked to him specifically on those conditions.

Q.—Doesn't he say it is very common? *A.*—I don't know what he says.

Mr. T. J. Scofield:—I object to that question, if the Court please.

THE COURT:—Objection sustained.

To which ruling of the Court the plaintiffs, etc., excepted.

The witness stated that he had referred as a student to a book of Dr. Webster on diseases on women but he does not know what the book states on this subject. The witness was asked if he had ever read "Case Histories of the Diseases of Women," by C. M. Green of Harvard. He does not know this book. The witness has heard of hot gin being used for girls having amenorrhea or delayed menstruation at puberty. He does not consider it a common remedy. He would consider the alcohol in it as having a deleterious effect. He does not consider alcohol as a food. He is not familiar with the experiment of Atwood and Chittenden on this subject nor with Cushny's experiment.

He has not read any editorial statement in the Journal of the American Medical Association as to the amount of alcohol which may be taken into the system in food without a deleterious effect but such a statement would not affect his opinion in any way. The witness defined his belief as to what the pharmacopeia and National Formulary represent. He believes that every patient should be treated as a patient and does not follow these books in prescribing.

The witness does not remember that he has used fluidextract of cimicifuga nor that of cinchona.

Q.—Did you ever use the fluidextract of ergot? *A.*—Yes, I think—yes, I know I have.

Q.—Well, you know that there is fifty-seven drops of alcohol per dose in that, don't you? *A.*—Yes. I would say in that connection, that as far as the alcohol is concerned, that it has a deleterious effect, but, in order to get the effect of the ergot, over a certain period of time, we permit the deleterious effect of the alcohol to go on, in order that we may get the effect of the ergot; because it is given in conditions of flowing, as a rule, and in severe conditions where we must take that chance with it; but I should say that if the fluid extract of ergot was given, and the patient could go out and buy it and take it just as they wanted to, that I would condemn it just as much as I would any patent nostrum.

Q.—You mean that if the physician prescribes it, it is not deleterious, but if taken without the physician's— *A.*—I do not say that at all. I said that it was—that it has a certain deleterious effect, as far as the alcohol is concerned, even though the physician prescribed it; but I said, in order to get the effect of the ergot in that solution, we forego the deleterious effect, for a short period of time, because it is given under a physician's orders and directions, and is not given and left to the discretion of the patient.

Q.—Did you ever give tincture of cimicifuga? *A.*—No, I don't think I have.

Q.—Did you ever give spirits of juniper? *A.*—No, I do not think I have. I may say, in that connection, that we are concerned more in finding out the cause of the disease, and we find that after we have gotten at the bottom or cause of the disease; and then the cause of medication is rather a simple condition.

Q.—When you say "we," what do you mean? *A.*—I mean that in connection with my associates in hospital work, in a regulated hospital.

Q.—Are you speaking of the profession as a whole, or just of your associates? *A.*—I mean that as these things are carried out in the larger clinical centers—the cross-way roads physician can, too, take those things up in a certain way—and that the best example of that situation is the manner in which the clinic has been built up here in Rochester, a little city of only 6,000.

Q.—Do you mean in Minnesota? *A.*—Minnesota, yes.

Q.—Are you connected with Mayo brothers? *A.*—No, I am not.

Q.—Do you refer—you refer to the Mayo brothers? *A.*—I do.

Q.—Have you used the compound tincture of gentian? *A.*—No, I do not believe I have ever used it.

Q.—Did you ever use tincture of hydrastis? *A.*—I have used the fluidextract of hydrastis.

Q.—How many drops of alcohol were there in each dose of that? *A.*—Well, that was immaterial; I do not know how much; it was immaterial, because it was always given in a limited number of doses; usually given in combination with the fluidextract of ergot.

Q.—In combination with that? *A.*—Yes, sir.

Q.—In combination with anything else? *A.*—No; I don't think I have.

Q.—Each dose contains 45 drops of alcohol, does it not? *A.*—It may be. I said I am not a pharmacist, and I don't—

Q.—You don't pay attention then to the— *A.*—and I want to get the reaction of the drug—and, as I stated before, I am willing to forego the deleterious effect of the alcohol to get that, over a limited period; because I am watching that patient, and if there are any symptoms that lead me to believe that this is causing certain pathological conditions to occur—the deleterious effect, in different parts of the body—I immediately stop it.

Q.—You are talking about in your hospital work? *A.*—Well, I would do that anywhere.

Q.—Before you got into hospital work. Then you mean when you want to use a certain drug, you absolutely ignore the amount of alcohol that may be used with it? *A.*—Well, I state that if I want to use a given drug I use it in such small quantities, as far as the amount of alcohol is concerned, that it will not produce any very bad effects.

Q.—But you say you do not know how much alcohol there is in it? *A.*—Well, I know this, that if the amount would be used for a short time, that it will not cause any very bad effect.

Q.—Well, you know that in some you use as much as 115 drops to a dose, don't you? *A.*—No, I don't.

Q.—What is the largest amount that you know that is in any medicine that you use? *A.*—Well, if you will ask me the drugs that I have used, I will tell you the amounts I have used.

Q.—Well, you have used spirits of ether? *A.*—In what way?

Q.—Any way? *A.*—I have used ether as an anesthesia.

Q.—Only in that way? *A.*—That is all.

Q.—Compound spirits of ether? *A.*—No.

Q.—Taraxacum? *A.*—No.

Q.—Compound spirits of juniper? *A.*—No, I have not used that.

Q.—Cannabis indica? *A.*—I probably used cannabis indica.

Q.—Well, the main point is that you absolutely ignore the amount of alcohol, and you don't even know what there is in a dose, if you prescribe a certain remedy? *A.*—I mean to say that the amounts that I give it in, and the length of time that I give it, that it would not have any deleterious effect, or, if it does have a deleterious effect, if it is noted, I would immediately discontinue its use.

Q.—You have used Warburg's tincture, have you? *A.*—No, I do not think I have.

Q.—Do you know what it is? *A.*—I do not know it by that name.

Q.—Did you ever use bitter tincture? *A.*—No, I don't believe so.

Mr. T. J. Scofield:—Of what, Mr. Hough?

Mr. Hough:—That is the name in the National Formulary, just bitter tincture.

Q.—Compound cathartic elixir? *A.*—No, I don't think so.

Q.—Doctor, if you regard alcohol as deleterious in all cases, why don't you use a glycerin preparation of hydrastis or of ergot? *A.*—Well, I may use them in some cases.

Q.—Have you ever used it? *A.*—I may have.

Q.—Well, don't you know whether you have or have not? *A.*—No, I don't recall—

Q.—Don't you know that you never have used it? *A.*—I don't recall. I could not say definitely. That would be a very difficult thing, Mr. Hough, to say.

Q.—Why would it be difficult for you to recollect whether you used the one with alcohol, or one with glycerin? *A.*—I think that would be a very difficult thing to state; when a man has been in active practice, and seeing a lot of cases in a large hospital over a period of twelve or thirteen years, just exactly what medicines he has used; that would be a difficult thing. I said that I did not regard the amount of alcohol that I gave in a fluidextract of hydrastis or a fluidextract of ergot, over the period of time, even though it may be deleterious to a certain—to a slight degree—I said that I would forego the deleterious effect for the action of the drugs that were in the alcoholic solution.

The witness defined the reason for his belief that the giving of alcohol in appreciable amounts for a long period is dele-

terious, and he stated that to give alcohol to a girl at the time of puberty without any control would be vicious. If it were controlled by a physician, the patient would not have an opportunity to form a habit. The witness stated that from two to three years are required for the changes which the girl undergoes in passing from girlhood to womanhood—puberty. He distinguished between what is normal and what is pathologic at that period.

He stated that even in a normal condition there might be some pain during the establishment of menstruation. He has even had cases in which, during the entire life of the woman, there was slight pain during the period and this was not considered pathologic and no medicine was indicated for it. He stated that if there are chlorosis or anemia, medicine can be given.

Dr. McKenna stated that he had used viburnum prunifolium for about five years but that he got no effect from it either in tablet form or as fluidextract. He does not consider it likely that something was left out in the tablet form which was in the liquid tincture or fluidextract. He does not know if other physicians have reported effects obtained with this drug, but even so it would not change his opinion.

The witness has treated cases of uterine displacements which were not operative cases. He has used mechanical means but did not use any drugs by mouth with the idea that they would act on the condition. If there was enlargement of the uterus, he might give ergot to contract it down. Ergot is a uterine tonic. If it was indicated he would prescribe an antiseptic douche. He has used pessaries and he considers the following statement read from the Cardui Home Treatment as a truthful one.

> "No one should ever apply a pessary without the advice and under the constant supervision of a physician."

Mr. Hough: *Q.*—Well, can't they be applied by a midwife or a nurse? *A.*—I would say—my experience has been that if the pessary is going to give the proper support, it means that the uterus must be in the proper position, and the physician is the proper one to determine that.

Q.—Can you answer the question just as I asked it, doctor, whether it could not be just as well applied by a nurse or a midwife? *A.*—I should say it could not.

Q.—Could not?

THE COURT:—Or anybody else, if they knew how?

Mr. Hough: *Q.*—Or anybody else, if they knew how, other than a physician? *A.*—I would say that nobody would know how as well as a physician.

THE COURT:—Well, that is not the question. If anybody knew how couldn't anybody do it? *A.*—Yes, anybody could if they knew how.

Mr. Hough: *Q.*—Then that sentence is misleading, isn't it?

THE COURT:—Well, if it is you may so argue to the jury, Mr. Hough.

Mr. Hough:—Can't I argue it to anybody else?

THE COURT:—Not with the witness, certainly.

There are cases of pain in the back which may be treated by medicine and which are not operative. The experience of the witness has been that the majority of cases should be treated by mechanical supports and by medicines. The majority of cases which he sees are hospital cases which are classified in his service because they require a combination of mechanical and medicinal treatment.

The witness does not remember that he has used wine of ipecac. The only preparation of ipecac that he has ever used, was many years ago in connection with a cough mixture.

Q.—Now, in cases of flooding that are not operative cases—first let me ask, do you have any cases as a rule that are not operative cases, or are the majority of your cases only operative cases now? *A.*—I have a great many cases that come to me for examination, and as I stated before, that one of the real functions of my work is the question of going over those cases and getting at the cause of the trouble, and I stated before that after the cause was ascertained, that many of those cases were treated very simply, even in a medical way, and that as we have gone on in this scientific way, the number of cases to be operated—

Q.—Now will you explain what you mean by "we" right there? Do you mean the entire body of physicians, or you, yourself? *A.*—No, I mean myself and my associates in the hospital. That the number of cases operated are less today than they were five and ten years ago, because of the fact that we have better methods of determining the cause of disease.

Q.—You mean you don't act so quickly in the matter of performing operations as they used to? *A.*—Yes, that is right. In other words, we determine the cause, and we can definitely establish whether it is necessary to operate or not, or whether the patient will get well without.

Q.—Well now, when a patient comes to you today, you not being in the general practice, and you decide that it is not an operative case, do you keep the case and treat it medicinally, or send it to another doctor? *A.*—Well, that is determined entirely by the history and the examination, and all. Those patients are ordinarily sent out to the hospital, and they are worked up there probably in combination with other men.

Q.—Then you keep them there after the examination, whether they need an operation or not? *A.*—Oh, that all depends upon what the condition is. It may be that in an office examination, after a history and all, that you can determine definitely what that case is, and I may go on and treat the case myself.

Q.—You mean medicinally? *A.*—Yes.

The witness stated that he has cases of menorrhagia which were not surgical cases. In the treatment he first determines what is a case of tuberculosis or case after pregnancy. He believes that a large majority of the inflammatory conditions in the pelvis that cause menorrhagia are operative. He has had cases of metrorrhagia which were not operative cases. These were treated by mechanical methods but he does, if there is reason for it, prescribe medicines by mouth. He may have prescribed viburnum prunifolium for that condition before he found out that it was inert and worthless.

Q.—Did your patients get well, any of them, at the time you were giving them viburnum prunifolium? *A.*—Oh, they may have and they might have gotten well if I didn't give them anything, but—

Q.—Well, did they get well while you were giving it to them? *A.*—I found that in the majority of the cases, that it didn't do them any good.

Q.—Did they get well when you were giving it to them? *A.*—Well, I can't answer that question by saying that they all got well or that they didn't all get well. I am stating that the majority of them were not affected by the—

Q.—I am not asking you whether they were affected. I am asking you whether the majority got well or whether the majority did not get well? *A.*—The majority did not get any better by that form of treatment.

Q.—That is not the question. Did the majority of them get better after you gave them that treatment? *A.*—I stated that the majority did not.

Q.—Did not get better? *A.*—Were not affected by the—

Q.—I am not asking you whether that treatment did it; I am asking you whether as a matter of fact they got better? *A.*—I stated that they did not, the majority.

Q.—They did not get better? *A.*—That is why I discontinued it.

Q.—After using it for five years? *A.*—I stated in a general way, as nearly as I can remember, that I used it during that period. I never used it very extensively.

Q.—And during five years you continued using it without getting any good results from it, or getting results which you considered were due to it? *A.*—Yes, in a general way. I used it over that peroid, during that time. Of course I was developing the work in the hospital, and was subjecting most of those patients to a more careful scientific scrutiny, and was finding that if you determine the cause definitely, and all that, it was possible to treat those patients very much better in that way than it was to try and give them any medicine.

Q.—Have you ever had any cases of dysmenorrhea which you treated by medicine given in the mouth which were not operative cases? Or cases which you thought required an operation? *A.*—Oh, I would say—I do not recall that I have treated many such cases. I probably have seen and treated some cases that had a painful menstruation that was brought on by the question of a certain amount of congestion, and any type of a hot drink would seem to do some good, but I have felt that most—

Q.—What medicines did you ever give? *A.*—I beg your pardon?

Q.—What medicines did you ever give? *A.*—Oh, I have probably had them take a little hot brandy.

Q.—Hot brandy? *A.*—Yes.

Q.—Anything else? *A.*—No, I don't recall. Probably hot tea.

Q.—Anything else? *A.*—I don't recall of anything else.

Q.—And you probably gave viburnum for some of those cases too, didn't you? *A.*—I may have. I probably did, but it didn't do any good.

Q.—You are sure of that, are you? *A.*—Yes, I am sure.

Q.—Did the brandy do any good? *A.*—Well, they probably thought it did.

Q.—Did you think it did? *A.*—I didn't know. But the fact that—do you mean to say the brandy?

Q.—Yes. *A.*—Why yes. I wouldn't mind, if a patient were suffering with a dysmenorrhea that I knew was not organic in character, I wouldn't mind giving that patient some hot brandy.

Q.—Did you ever treat any woman with medicine in the mouth during the menopause? *A.*—Oh, I suppose I have. It all depends on the condition for which I was supposed to treat her.

Q.—Did you ever give her any brandy at that time? *A.*—I don't know that I have.

Q.—Did you ever give her any gin at that time? *A.*—No, I have not. I have never recommended gin.

Q.—You have tried viburnum prunifolium? *A.*—Well, you are asking me just in a general way a lot of things that I have done, and it is very difficult for me to answer that question unless you give me some specific reason for giving a thing. Now, if I have given medicine at the menopause—why, I may have treated cases of conditions in the

abdominal region anywhere, and given those patients medicine during the menopause. Certainly I have.

The witness was then asked as to the treatment of dysmenorrhea with drugs and also at the menopause. He stated that he treated dysmenorrhea at the menopause just as he would at any other time. If there was only discomfort, he would not give any medicine; if there was real pain, he would give something to relieve the pain. He stated that it is his opinion that the hypothetical medicine would do just what it was assumed to do in the hypothetical question. He was then cross-examined as to the quantities of drugs in the hypothetical medicine.

Dr. McKenna reiterated that it was his opinion that in the quantities present the drugs in the hypothetical medicine would not produce their therapeutic effects which it was assumed they would have.

The witness was repeatedly cross-examined as to his statement concerning his opinion as to points in the hypothetical question. He stated finally that he does not know of any combination of the two drugs in the hypothetical medicine that would accomplish anything.

The further hearing of the case was adjourned until 10:30 o'clock the following day, May 4, 1916.

May 4, 1916, 10:30 o'clock a. m.

Court met pursuant to adjournment.

TESTIMONY OF DR. FRANK BILLINGS

Dr. Frank Billings was called as a witness on behalf of the defendants.

DIRECT EXAMINATION BY MR. T. J. SCOFIELD

Q.—What is your given name? *A.*—Frank Billings.

Q.—You are professionally a physician, are you? *A.*—I am.

Q.—I take it you are a graduate of some medical college or colleges? *A.*—I am.

Q.—Of what, doctor? *A.*—Why, I am Professor of Medicine in the University of Chicago, and in the Rush Medical College and Dean of the Faculty of Rush Medical College.

Q.—Now, Doctor, may I ask you to talk loud, louder than you are talking; it is difficult to hear back here, and, if you will, speak a little louder, please. *A.*—I did not hear you. I have not heard you quite.

Q.—I say, speak a little louder.

THE COURT:—You better be fair with the witness, Mr. Scofield.

Mr. T. J. Scofield: Q.—What college are you a graduate of, Doctor? *A.*—Northwestern University Medical School.

Q.—What year? *A.*—1881.

Q.—Since your graduation, have you pursued your studies of medicine? *A.*—I have.

Q.—Where? *A.*—In Chicago.

Q.—Have you studied abroad, also? *A.*—In the years 1885 and 1886, I spent those years chiefly in Vienna, Paris and London.

Q.—Have you had any hospital experience, Doctor? *A.*—I have.

Q.—With what institutions? *A.*—I was House Physician, Resident, at Cook County Hospital for eighteen months in 1881 and 1882. I was Attending Physician at the County Hospital for about ten years, about 1890 to 1900. I was Attending Physician at the Mercy Hospital from 1888 until 1898. I was Attending Physician at St. Luke's Hospital about ten years, I have forgotten the exact dates, and Consulting Physician of St. Luke's Hospital until last year, from the time I retired as Attendant. I have been an Attending Physician, and still am, of the Presbyterian Hospital, since 1898.

Q.—I did not understand what your connections are as stated by you, with the Medical Colleges at the present time. Please state them again. *A.*—I am Professor of Medicine at the University of Chicago, also Professor of Medicine at Rush Medical College, which is a part of the University of Chicago, affiliated with it, and Dean of the Faculty of Rush Medical College.

Q.—Now, in your work, Doctor, do you give any special attention to any particular department of medical practice? *A.*—I devote my time chiefly to what we call internal medicine. That means, general diseases, as a whole, with diagnosis. In other words, I exclude as a rule, from any treatment, the so-called specialties and surgery. I diagnose, devote my attention partly to diagnosis in the whole field.

Q.—Where you speak of diagnosis, will you tell us what you mean by diagnosis? *A.*—By diagnosis, one means the recognition of the morbid conditions in the human individual, which cause the symptoms of disease.

Q.—Now, Doctor, in making a diagnosis of a condition, what is it that you do? *A.*—We usually first obtain the account of the patient, or, if the patient is not able to give it, of someone who is acquainted with the conditions from which the patient has suffered. In other words, the history, the past history of the patient, which includes always the symptoms as the patient has observed them himself.

Next a physical examination is made of the patient, and that physical examination is supplemented by—if necessary—by laboratory examinations of the blood, of the urine, if necessary of the stools, or if the individual happens to have suffered from something in which there is a fluid in the joint or in the chest, that is sometimes withdrawn and examined in the laboratory. That is what we call a general examination.

Q.—Doctor, are you familiar—you use medicines, of course, in the treatment of disease? *A.*—I do.

WHAT IS A TONIC?

Q.—Now, are you familiar with the action of drugs and of tonics? *A.*—I am familiar with such drugs as I use.

Q.—What is meant by the word "tonic," Doctor? *A.*—In medicine, the word "tonic" has practically two designations as we use the word. In one sense the word "tonic" is used with the adjective "stimulating," a stimulating tonic, meaning that by the use of the tonic one would stimulate the functions, some of the functions of the organs of the body.

For instance, a tonic for a muscle, would be one which would make the contraction of that muscle more firm than it would be without the tonic. To stimulate the secretion would mean that one would stimulate, for instance, the juices of the stomach and make more of them, more of the juices to help indigestion or, in the case of excretions from the kidneys, to improve or increase the excretions, practically secretions of the kidney.

Or, for instance, to increase the nerve tone. Some remedies will act upon the centers of the brain and spinal cord and improve the impulses, nervous impulses that go out. Those things we designate as stimulating tonics.

Then we have another kind of tonic which we call restorative. A restorative tonic is one which adds to, as for instance—the best example would be with an individual suffering from a poverty of the blood, which we technically call anemia, and we give iron, an actual ingredient of the blood, and try to improve the quality of that blood. Iron is a good example, therefore, of a so-called restorative tonic.

AMENORRHEA

Q.—Doctor, we have heard something in this case about amenorrhea. Will you tell the jury briefly what the term "amenorrhea" means and what is the most common cause of it. *A.*—Amenorrhea—the actual derivation of the word means "without menstruation," the absence of menstruation.

When the menses fail to appear at the proper time or when they miss during the menstrual period of a woman, we call it "amenorrhea," and the causes are various. Certain constitutional diseases, with or without poverty of the blood, usually with poverty of blood, anemia, will cause it.

For instance, tuberculosis of the lungs, or a general tuberculosis, is associated with anemia, and one of the most common and early symptoms of that is amenorrhea.

People who suffer from diseases in which there is what we call secondary anemia—by that term I mean an anemia that is dependent upon some disease which is destroying the blood all the time, or is preventing the formation of new blood all of the time. Those are called secondary anemias.

As an example, malaria is associated with anemia because the parasite which causes malaria is in the blood stream; actually gains entrance to the blood corpuscle and destroys it. Therefore anemia occurs.

In the hookworm disease, of which we occasionally have an example in Chicago, imported from tropical or semitropical regions of the South, the worm sucks the blood from the intestine and commonly a bleeding occurs around the head of the worm, so that anemia is very common.

Pellagra, a disease due to a faulty balance of diet, not enough animal food, as a rule, is associated with anemia, secondarily, want of nutrition.

Bright's disease, one form of it especially, is associated with anemia, because the poisons in the blood due to the Bright's disease cause anemia.

Then young girls in their formative period, as they are developing, will sometimes suffer from a want of general development of the womb, of the heart, or blood vessels, of the blood-making organs, and they suffer from an anemia peculiar to them, and they do not menstruate.

Those are the general causes, due to a want of blood, poverty of blood, or anemia, and amenorrhea occurs.

Amenorrhea also occurs toward the woman's change of life, at periods sometimes extending over two or three years. Sometimes the menopause will occur immediately, and sometimes it will take one year or two years, and I have seen it occur over three or more years in time in which the woman would miss for six months at a time.

That is merely apparently the readjustment of the organs of her body to meet these new changed conditions, but that description may not meet it in some other woman, because occasionally she menstruates with the amenorrhea between. That does not mean that that is associated with poverty of the blood. It is more directly related to the nervous mechanism of the body, to the physiology of the body, and its physiological processes. Does that answer in full, sir?

Q.—I think it does, Doctor, sufficiently. Doctor, are you acquainted with the drug known as cnicus benedictus? *A.*—I am not acquainted with it from my own personal knowledge of the drug.

EXPERIENCE WITH VIBURNUM PRUNIFOLIUM

Q.—Well, are you acquainted with the drug known as viburnum prunifolium? *A.*—I am.

Q.—Will you state your experience, if you have had any experience with the drug, and your conclusion as to its therapeutic value, if any? *A.*—Viburnum prunifolium is the bark of black haw. It is drug which has been known for a great many years. It was—it has been recommended for many years by teachers of materia medica, the materials of medicine, and at one time recommended by specialists who made a study of woman's diseases, so that at one time it was rather commonly used, either in the form of what we call the solid extract of it, or the fluidextract of it.

When used, it at first was supposed to help stop hemorrhages from the womb. It was supposed to help stop pain during menstruation. It was supposed to tone up a good deal. But, like other drugs that we had in our earlier days, proved out more therapeutically, it has not to-day the same standing that it had twenty-five or thirty years ago, or twenty or even fifteen years ago perhaps.

Formerly it was prescribed a good deal by general practitioners and by specialists for these conditions that I have named, painful menstruation, dysmenorrhea, or hemorrhage of the womb, but it has gradually dropped out.

I have used it myself either in the form of the solid extract—sometimes in the form of the fluidextract. It is a nasty drug, about one of the nastiest things that anyone can put in their mouth, that is, to taste; almost nauseating in its effect, so that instead of using the fluidextract, I have been in the habit of ordering the empty capsules in which the patient could put the 20 or 25 drops necessary to take three or four times a day, as the case may be.

Like all things, it apparently sometimes had an effect in relieving pain in connection with what one was doing beside for painful menstruation. It sometimes—the woman sometimes would apparently cease to flow to some degree while one was using it coincident with the use of other things, but practically—I think I can speak for myself—

Mr. Hough:—I have difficulty in hearing you. If you can talk a little louder, I would be obliged.

The Witness:—My own opinion is that it is a drug that has mighty small potency for the things for which we formerly used it.

Mr. T. J. Scofield: Q.—Doctor, do you still continue to use it? *A.*—I used it this last year on one patient, that is, in 1915.

Q.—Now, under what circumstances did you use it there, Doctor? *A.*—And I have occasionally prescribed it, but very rarely, perhaps once or twice a year in recent years.

Q.—Formerly you prescribed it more often, did you? *A.*—In earlier years I did.

The witness was then asked a hypothetic question as to his opinion of a hypothetic medicine similar to Wine of Cardui.

Q.—Now, doctor, what is that opinion? *A.*—I would say it would have practically no effect upon a dysmenorrhea due to an anemia.

Mr. Hough:—On which? *A.*—Amenorrhea, due to anemia.

Mr. T. J. Scofield: Q.—Why not, doctor? *A.*—Because it would have no restorative effect upon the blood.

Mr. Hough:—Did you say restorative effect? *A.*—Yes.

Mr. T. J. Scofield: Q.—Now, doctor, is there any single form of medicine, or of medicinal treatment, a single form of it that would be applicable for an anemia which is due to such a very large variety of causes? *A.*—No, there is no single remedy that could be applied to all of the different types of anemia, which I have named a moment ago.

THE COURT:—You have used the word "anemia" in your question and I am sure that you mean "amenorrhea." I think the reporter ought to correct it.

Mr. T. J. Scofield:—Yes.

Mr. Hough:—Which way did the witness understand it?

THE COURT:—I do not think there is any doubt but what the witness understood it, Mr. Hough.

Mr. T. J. Scofield:—Now, doctor, in amenorrhea—

Mr. Hough:—One moment.

The Witness:—If I would substitute the word "amenorrhea," for the word "anemia," it would be the same answer.

Mr. Hough:—The answer would be the same in either case?. *A.*—Yes.

Mr. T. J. Scofield: Q.—Now, Doctor, is amenorrhea, which is due, as you have described, very frequently to anemia, properly treated by any one form of tonic? *A.*—No.

Q.—Why not? *A.*—Because of its various causes, and the treatments must be based upon the underlying causes.

TREATMENT OF ANEMIA

Q.—Now, in treating anemia, let me inquire whether or not iron and arsenic and strychnin would constitute good treatment. *A.*—Iron is one of the chief drugs which we use because the blood contains iron in its corpuscles. Arsenic is used because it stimulates the bone marrow and other blood making organs to make more cells. Strychnin is not a restorative tonic. It may be placed in these restorative tonics to stimulate nerve sensations or something of that kind, but of itself it is not a direct restorative tonic. It is a stimulating tonic.

Q.—Now, Doctor, suppose that you had an amenorrhea that was a result of anemia, or due to anemia, and that the cause of that anemia is malaria, as you have stated in your previous answers. What would be the proper treatment there? Would iron be proper treatment? *A.*—Not at the beginning. One must get rid of the malaria first. One must give the patient the remedies which will destroy the malarial parasites which are in the blood, and in the spleen and in the bone marrow, and elsewhere in the body, before one can expect a restoration of the blood by means of so-called tonics, iron, and so forth.

Q.—Well, suppose now, Doctor, that you have an amenorrhea from an anemic condition and the anemia is due to hookworm, as the underlying cause. What would be the treatment which you would have to give under those circumstances, or what would it be necessary to do? *A.*—There it is absolutely necessary that one must get rid of the hookworms which are in the intestinal canal, before any more blood is made, that is, before blood will accumulate in any quantity, and the amenorrhea due to the poverty of the blood in that case would remain until one got rid of the hookworms, and built up the blood.

Q.—Now then, doctor, suppose that you had an anemia that was due to syphilis, would that require a special form of treatment or not? *A.*—It would.

Q.—What would it require? *A.*—Antisyphilitic remedies must be used until the patient is at least partly restored to health, to overcome the anemia which is not infrequently present in syphilis.

Q.—Now, doctor, is the same thing true of all constitutional diseases that result in anemia? *A.*—It is. We sometimes are not able to overcome the constitutional disease, and therefore we cannot then get rid of the amenorrhea. Tuberculosis of the lungs, as you know, is very frequently a fatal disease, and if the patient continues—if the disease continues to progress, the amenorrhea persists till death, and all the remedies in the world won't start it.

Q.—Now, under such circumstances as that, doctor, that you have last referred to, would it be good practice in your judgment, to undertake to stimulate the menses by any means? *A.*—Well, it would do no good, and it would be simply a question of the judgment of the doctor who did it—that would be all. It would be a question rather of the judgment of the man who had the management of the patient. Inasmuch as it would be ineffectual, it would be pretty bad judgment in my opinion.

Q.—Now, doctor, would you consider viburnum prunifolium, and carduus benedictus, in an alcoholic menstrum, such, for instance, as in the hypothetical medicinal solution, which I have described to you, as a tonic in any sense? *A.*—It may be a moderately stimulating tonic, because of the amount of alcohol in it, that is, stimulating with its bitter principles—possibly it might be an appetizer. I suppose that it is dependent, somewhat, upon the palate of the individual who takes it. But I would not consider it a restorative tonic in restoring anything to the body, blood, or power or anything of the kind.

Q.—Are you familiar with the condition known as inflammation as it affects the generative organs of a woman? *A.*—With several forms of inflammation, yes, sir.

Q.—Well now, doctor, when inflammation passes up through the uterus and involves the lining membrane of the fallopian tubes, what name do you apply to that condition? *A.*—The general term salpingitis, meaning an inflammation, of the fallopian tubes.

Q.—With reference to the escape of the product of inflammation, or the discharge which results from it, do those products of inflammation ever become locked up in the fallopian tubes, or in any of the other closed cavities of the body? *A.*—They do.

INFECTION OF FALLOPIAN TUBES

Q.—Now, have you had any special experience or given any special study to the subject of locked up septic matter in the various closed cavities of the body, such, for instance, as the fallopian tubes? *A.*—I have.

Q.—Well, tell us about it, doctor. *A.*—Such locked up material due to infection—by "infection," I mean, due to pus bacteria, to minute organisms—when locked up, form what we call a focus of infection. That is, it is circumscribed, it is held in, it cannot get out, it is locked in.

The fallopian tube is a tubular affair with an opening at either end, one in the uterus, and one outside toward the general peritoneal cavity. Those two openings may be closed and, within that tube, is this septic secretion going on, and it may be small in amount, or it may be large in amount. I have seen them swollen up to that size (apparently indicating a diameter of about three inches), as big around as a pear, a large sized pear.

In that condition, when such secretion cannot get out, the germs that are in them are apt to pass into the general circulation, into the blood vessels, and they may lodge anywhere in the body. They may lodge in the joints and produce a type of infection of the joints. They may lodge in the heart, and produce a type of malignant heart disease. They may lodge in the blood vessels of the kidney and produce a type of infection of the kidney, and so on all over the body. But more particularly in the fallopian tube and there are two kinds of infection that are the worst to do that.

One is the germ that causes gonorrhea. We call it the gonococcus. That, locked up in such a place as the fallopian tubes, may escape into the blood stream and produce malignant heart disease, as any practitioner—I have seen and I think one could say that any practitioner of wide experience has seen a fatal disease result, as a rule.

It may go to the joints, and produce what is commonly known as gonorrheal rheumatism. That is a wrong term to use. It is gonorrheal joint disease, it is not related to rheumatism at all. It is a gonorrheal infection of the joints, sometimes attended with pus in the joints, a serious disease, and painful, prolonged for long periods of months, and sometimes years, crippling in its effects.

Then in addition to that, locked up in here, it may suddenly leak out of the outer end of this tube and produce peritonitis, a gonococcal peritonitis. That is not an uncommon condition at all among children in public institutions.

In our public institutions, even in our own state, as high as 40 to 50 per cent. of the young girls that are in our public institutions have acquired gonorrhea, and many of them suffer from this infection of these tubes and peritonitis and joint troubles and all of that.

The other infection, which is important, of the fallopian tubes, is tuberculosis. Tuberculosis, which either comes from the uterus, or from the blood stream and lodges in the fallopian tube which becomes the center of a generalized tuberculosis. It may go to the peritoneum, this lining of this great cavity, and infect it and we have what we call tubercular peritonitis, or it may spread to the lungs or anywhere else in the whole body, it may spread anywhere.

Now, besides those two main things that I have named, any other kind of a germ that is pathogenic for man, that is, that will produce disease, and particularly the kind of germs that cause pus. There are several of those varieties. One of them grows in a chain, and the word "streptos" means "chain," so we call them streptococcus, because

it is a little round ball. Those produce pus and they are common, and where they get into the uterus or where they get into the fallopian tubes they produce pus there, and while that is common, it is not as common as gonorrheal infection of women.

Gonorrheal infection of women is one of the commonest things that we have to meet. It is almost a shame to mankind, the number of women that suffer from gonorrheal infection of those tubes. I think that covers it, sir.

AN ILLUSTRATIVE CASE

Q.—Now, doctor, have you any special case in mind that you came in contact with recently, in your hospital work or otherwise, that illustrates the matters which you have just been describing? *A.*—One meets this type of infection in women very commonly in the hospital practice in which this gonococcus infection, unknown to the woman many times, sometimes an innocent wife suffers from infection of the womb, infection of the fallopian tubes and infection of the ovaries—and with that infection the womb, getting bigger, will often take a malposition, usually backward, carrying with it the tubes and the ovaries, carrying them down with it, and they become inflamed and matted together.

We have that very commonly, producing generalized symptoms, which are probably not necessary to name to you, simply naming that general thing.

Recently, that is, within the last few months, I had a patient, a young woman in the Presbyterian Hospital, who had had this infection of the fallopian tubes and of the ovaries, secondary to a general infection coming from her head.

The infection was in her tonsils, which had been removed at her home in Texas. It was in her teeth, in her jaws. It was in one of these sinuses up here, these little hollow places in our heads and, as a consequence she had a joint infection.

The general infection had become so severe in her joints that some of the joints were ossified. Some of her finger joints were ossified, so that she could not bend her fingers. The knees and ankles were involved in it, so that she was unable to walk. She was bedridden.

In the examination of that woman, it was also found that she had this pelvic condition, the matting together of these tubes and ovaries and that she suffered also from menorrhagia, and excessive flow. The excessive flow was of such a degree that she was anemic, that is, had poverty of blood. The cell count went down to about three million, where it should have been four and a half or five millions, in a certain amount of blood. The color of her blood—the hemoglobin, as we call it, was reduced from an average normal of 85 in the woman, to 35 with her, and she was weak and bedridden and almost helpless, almost a helpless invalid because of those general conditions.

Necessarily her treatment had to be long to get rid of the joint infection which was the cause undoubtedly; the result—that in her pelvic organs and about her head.

Finally, however, because the hemorrhage continued, and did not respond to any form of drug treatment to stop that hemorrhage, or to build up her blood, it forced an operation, and, in the treatment of that woman, she was the one that I gave the viburnum prunifolium to, without any result upon the hemorrhage.

She had painful menstruation; it had no result there. Even ergot, given under the skin, or into the muscles, so as to get its intense effect, in addition to its use by mouth—a drug that is potent to cause contraction of the womb, would not stop it.

Finally I asked Dr. Webster, Dr. Clarence Webster, who is the surgeon for diseases of women in the hospital, to look the patient over with me, and advise what we could do for that womb, to stop the hemorrhage. In his opinion, after the use of these drugs, such as I had given her, operation alone would relieve her.

In the operation these conditions were found, and the cause of the hemorrhage was proved to be a hardening of the blood vessels that go to the womb, and in the womb itself, and so much were the walls hardened, that they could not contract to stop the hemorrhage. Consequently there was an anatomical condition there, a condition of the womb and ovaries, under which that hemorrhage would have gone on until the girl would have bled to death, in all probability, and the only relief came from tying off those blood vessels, and removing one diseased ovary and both fallopian tubes because of the conditions in them.

Following that, that girl steadily progressed toward health. That operation was done a year ago tomorrow, the 5th of May. In September she left the hospital, or sometime in August, and came back to have her blood examination, and in September her red cells had mounted up to nearly five million, four million one hundred thousand, or something like that, hemoglobin 85 per cent. She had gone from 115 pounds in weight to 125, and while she had still this irreparable joint trouble in her hands, and some in her feet, she was restored to her friends as cured as anybody can be.

Q.—Now, doctor, having this hypothetical solution in mind, and assuming that it is taken three or four times a day, in tablespoonful doses for such a condition of pyosalpinx, or other forms of inflammation, or locked up infection, such as you have been describing, where the products of inflammation are enclosed in the cavities of the body, have you an opinion as to whether the use of this medicine will (quoting from the Cardui Home Treatment Book, page 13) "restore the patient to health"? *A.*—I have.

Q.—What is that opinion? *A.*—I think it would have no effect in the restoration to health.

CURE

Q.—What is your opinion as to the difference between the cure of a disease and the relieving of symptoms of disease? *A.*—I think in the first place, that the word "cure" is a bad one. People are restored to health, or the near-health. The word "restoration" is a good deal better than to say "cured."

We assume a good deal if we say that we are the active agents in absolute curing. We help toward restoration. To palliate means to relieve the symptoms. Palliation means simply to relieve one of suffering. It does not mean at all that you have even restored the patient to health.

THE PERIOD OF PUBERTY

Q.—Do you recognize the condition known as the period of puberty in girls as a natural physiological development in their lives? *A.*—It is.

Q.—Do you think a medicine, such as I have described to you in the hypothetical question, should be recommended for all girls during the whole period of puberty? *A.*—I do not.

Q.—Why not, doctor? *A.*—Because puberty is a physiological and normal development in a woman, in a girl. It is when she passes from girlhood into womanhood. When it does not occur normally, there is some constitutional thing back of it that prevents that. I named one to you a moment ago.

Certain girls are defective in physical development. The womb remains infantile, that is, like that of an infant. The blood vessels, the heart and other organs do not develop the way they should, and yet that girl has the external appearance of being pretty nearly normal. One would get at it, if you made a physical examination—that these things were at fault.

But that girl will fail to menstruate and will fail to develop, because her genital organs have not developed nor her body developed at the period of puberty.

Girls suffer; a girl at her time of puberty is just as apt to suffer from malaria, from hookworm disease or from tuberculosis—yes, God help us, too many of them suffer at that time. Puberty apparently does not develop.

You have got to get at the underlying disturbing thing that prevents that girl from showing a normal physiological puberty. That is the whole point. No one drug, or anything else is going to meet it.

Q.—Now, Doctor, on the assumption that the hypothetical medicinal solution which I have described to you, corresponds to Wine of Cardui, let me read to you the following statement from the Cardui Home Treatment, published in 1912 and copyrighted by the Chattanooga Medicine Company. I read from page 24 as follows:

"Every girl should take Cardui at the time of puberty. It can never do her anything but good."

What is your opinion, Doctor, as to the truthfulness of this statement? *A.*—My opinion is that that is pernicious advice to go out to anybody. I could paraphrase it in the terms of the street, as saying, "Being done good."

PREGNANCY

Q.—Now, let me call your attention to another paragraph from the same book, copyrighted in 1912, by the Chattanooga Medicine Company. I read from page 26, at the bottom of the page, under the heading of "Disorders of pregnancy."

> "No one need be afraid of taking Cardui during pregnancy. Its action is gentle and strengthening, and it can never do anything but good."

Assume again, Doctor, that the hypothetical medicinal solution corresponds to Wine of Cardui. What is your opinion in reference to that statement? *A.*—That again it is bad advice. A woman in pregnancy is fulfilling again a physiological function. Unfortunately and rarely, she suffers some of the accidents of pregnancy. She may have some faulty implantation of the afterbirth that might make hemorrhages.

Unfortunately, a woman that is pregnant sometimes has Bright's disease develop, a horrible thing. Sometimes a woman gets, because of the pressure of the womb upon the tubes that run from the kidneys, the ureters—will get stagnation of the urine and will have infection of one kidney and pass into chills and fever in consequence.

Sometimes a woman pregnant has already a disease. She has heart disease from some old rheumatism—old heart disease from a past rheumatism—or she has tuberculosis, or she has malaria.

She is subject to disease as any other woman. But, with these exceptions that I have named, anywhere from 90 to 95 per cent. of the women pass through pregnancy without any disease. They suffer some, as women alone can bear suffering, but it is the natural state of motherhood that she is suffering and if she is suffering that way she takes many simple remedies.

That mother is delivered in 90 to 95 per cent. of the cases normally, and by that word "normally" I mean without any interference with the labor, as an instrumental delivery, and she is delivered without injury to herself or to her child.

That is normal, and 90 to 95 per cent. of women pass through their pregnancy without any abnormality, and are delivered normally. Therefore I answer the question that, to take any medicine—I don't care what it is—because it can do no harm, and will always do her good, is absolutely bad.

PAIN IN THE BACK

Q.—Doctor, I read from the Ladies' Birthday Almanac, published by the Chattanooga Medicine Company, the 1913 edition. I read from page 3. "Right there." There is a picture of a lady standing erect with her hand on her back. (Pamphlet shown to witness.)

Just look at the picture, Doctor. (Reading):

> "That is where the pain is, in the small of your back. It is terrible, nerve racking and unbearable. You just cannot work. Don't let it keep up, ston it. Take a dose of Cardui, the Woman's Tonic. Lie down for a short rest. In a few moments you will feel much better. Take Cardui regularly for a few days. It will make all the difference in the world. Keep it up till the pain is gone, and you will have got back your strength. Won't you thank Cardui? Yes you will, as thousands of others have done, and are doing every day. Try this plan of treatment. It may be just what you need."

In the same Almanac, Doctor, I read from page 27.

"Those dizzy spells. Liver trouble is the cause mostly of those dizzy spells. It also causes nausea or sick stomach, and bad breath; yellow eyes and complexion. Headache. Constipation, chills and fever, rheumatism, indigestion, and similar symptoms. When your liver is wrong, you cannot be right. It is the largest organ in your body."

I read from page 27—

Mr. Hough:—Have you finished that?

HEADACHE

Mr. T. J. Scofield:—I see that it relates to black-draught and that is not the quotation that I desire. Omit the last, Doctor, which I have just been reading to you, in regard to those dizzy spells. I now read from page 27:

"Oh, that headache. Of course headache is only a symptom, but it is a mighty miserable thing to have, and when it becomes a regular visitor, it begins to be a calamity.

"Wine of Cardui will not act like a nerve deadener to kill the pain of headache, but it goes down to where the real trouble is, and begins at once to remove the cause, the female inflammation, irregularity or other form of womanly disease. In this way, after a few days, the headache most likely disappears, and when the real trouble is cured, it stops those regular visits. Try the Cardui treatment for headache and other womanly pains."

Assume now, Doctor, that this pamphlet, the Almanac of 1913, is printed in quantities of approximately twenty millions of copies, and is distributed to the women all over the country. Have you an opinion as to what the effect of reading such a statement would be on women who are not suffering from any definite disease, but who may be influenced by suggestion?

Mr. Walker:—That is objected to.

THE COURT:—Have you finished your question?

Mr. T. J. Scofield:—Yes sir.

THE COURT:—He may answer.

Mr. Walker:—"Have you an opinion of what women will think after reading that?" That is what the question amounts to.

THE COURT:—He is giving his professional opinion, that is all.

Mr. Hough:—That is not his professional opinion at all. That is not a professional opinion as to what a woman would think from reading that.

THE COURT:—But what he thinks she would think is his opinion.

Mr. Hough:—I know, but that is not his professional opinion.

THE COURT:—Based upon his experience.

Mr. Walker:—If he has had any experience with women that have read that, that would be something in reference to that subject, but he has not, and he is asking him now to pass on what a woman might think after reading it, which is something that is not even involved in the book.

THE COURT:—Why don't you change the form of the question, Mr. Scofield? In the first place you have two extracts from the book, and they involve perhaps different disorders. Why not separate them, and find out first if the witness has any opinion as to what effect Wine of Cardui would have for that particular disorder.

Mr. T. J. Scofield: Q.—Doctor, do you have in mind the last excerpt which I read.

"Oh, that headache. Of course headache is only a symptom, but it is a mighty miserable thing to have, and when it becomes a regular visitor it begins to be a calamity. Wine of Cardui will not act like a nerve deadener, and kill the pain of headache right off, but it goes down to where the real trouble is, and begins at once to remove the cause, the female inflammation, irregularities, or other form of womanly disease. In this way, after a few days, the headache most likely disappears, and when the real trouble is killed, it stops those regular visits. Try the Cardui treatment for headache and other womanly pains."

Now then, Doctor, assuming that Wine of Cardui, is practically the same thing as the hypothetical medicinal solution, which I called your attention to, have you any opinion as to whether Wine of Cardui will do these things that are claimed for it in this excerpt, which I have just read. *A.*—I have.

Q.—What is that opinion? *A.*—In the first place, it assumes that the cause of headache in woman is a pelvic condition, which is not true. It may be a cause of headache, but there are many others.

It assumes that if a woman has pelvic disease—and I assume, I suppose it assumes an organic disease—that it will remove that, and therefore remove that cause of the headache, with which I disagree.

It is altogether bad because a woman is just as subject, or more subject to headache from various causes, as a man, and if that headache —if she suffered from an organic disease that was removable that might be removed, if attended to properly, it would be absolutely harmful for her to play with medication applied to some part of her body which she thinks is the cause of her headache.

Bright's disease, with the poison which comes from it, is common to man and woman, and headache is one of the most common symptoms of the severe intoxication of that disease, fearful headaches. No medicine you could apply would entirely stop it. It may relieve by relieving the conditions temporarily, of the poison in the body.

Tumor of the brain, to which any of us are subject, causes pressure within the skull, and excrutiating headache.

There is a type of headache from which many human beings suffer, that is periodical. People are sick at the stomach. They are depressed physically and mentally, they have disturbed vision. This is one-sided often and therefore is called hemicranial, meaning half skull, or half side of the head. That runs frequently in families. They don't inherit the headache, but they inherit a nervous constitution, which don't stand the wear and tear of life, and if they abuse themselves in any way, knowingly or unknowingly, they have some of those headaches.

If they suffer from disease, whether of the pelvic organs, or of the kidneys, or of the stomach, or anything else. If they have faulty vision. If they have bad hearing, and have to strain to hear. If they have trouble, business or domestic. If they overeat or if a man oversmokes. If a woman overdrinks tea or coffee, they have headaches. The underlying cause always has to be approached and the remedies are nothing compared with the correction of the habits in that condition.

So I could go on and talk to you for half an hour or longer about headaches of different varieties, to which all of us, including men and women, are subject. One must remove the cause, if it can be done, before one can relieve the individual permanently.

We can palliate, we can relieve for the time being, a headache, with various things. But that does not restore the individual to a condition of health when he no longer has headaches. That is mere relief, palliation.

Q.—Now, Doctor, have you an opinion, as to what would be the effect, if any, of such an excerpt as I have read here, if it should fall into the hands of a woman, by way of suggestion.

Mr. Hough:—That is objected to.

Mr. T. J. Scofield:—Well, who had the underlying conditions which you have just been describing?

THE COURT:—It seems to me the proper way to effect that is to have the doctor state what his experience has been with women in general as to what susceptibility they may have to suggestion. Then, when you argue to the jury, you may apply the evidence in this case. But Dr. Billings of course cannot tell what any individual woman thinks, or what women in general think. He may tell his experience as to the susceptibility of women to lend themselves to suggestion.

Mr. T. J. Scofield:—Well, just answer the question, as it has been suggested by the court.

Mr. Walker:—May we take an exception?

THE COURT:—Yes, the point will be saved.

To which ruling of the Court the plaintiffs, etc., excepted.

A.—Women, like all other parts of human kind, are apt to believe what they read, and especially to believe what we read about health and disease. It has been my experience that people will believe what they read in print, rather than to believe someone who is absolutely qualified to tell them about themselves by word of mouth.

Consequently, people reading of remedies of any kind, are more apt to take them than if they simply heard of them by word of mouth, and especially, if in the wording of the remedy described, many symptoms are enumerated, which may, like a shot gun, hit something that individual has once in a while, and they therefore will apply the remedy.

Mr. T. J. Scofield: *Q.*—Now, Doctor, what would be the effect in your opinion, of a woman taking a medicine containing the equivalent of 96 drops of whisky, three or four times every day during pregnancy, during puberty, and during the menopause, with reference to the danger of causing the formation of an alcoholic habit? *A.*—That would depend upon the individual. Some people will form a habit easily with any drug that affords any sort of a pleasurable or comfortable sensation. Other people do not.

The effect is also, in a sense, different upon different individuals. A small quantity of alcohol, as much as named, 48 drops, three or four times a day, may be of inestimable harm to some people, and apparently another individual will take it for a long time without any perceptible effect upon him.

To illustrate: I have known—I had a patient under my charge who suffered from what we call hardening of the liver, sclerosis of the liver who took one drink of whisky a day for years. That is all he ever permitted himself to take, and as I knew him intimately, I know he told me the truth.

Sclerosis of the liver is an increase in the fibers in the liver until it shrinks down into a hard mass all covered over with little lumps like the hob nails of a shoe, and it shrinks down until it no longer functionates, and the individual gets dropsy and dies.

I have known also a man whom I had under my charge for years, with his family, who drank one quart of whisky a day for twenty years before he got sclerosis of the liver. He drank whisky for years in enormous amounts.

So that no one can say that, taking a group of individuals, that 48 drops of alcohol could not make a habit with that group of individuals. It may. It may make it in more than one. It may have harmful effects upon the stomach, upon the liver, upon the kidneys in that group of individuals. On some of them it may have no effect at all.

But it is a bad thing to ask anybody, or a community of individuals, or an individual to take a dose of alcohol or that amount of alcohol, because it is surely apt to do damage to some of them.

Mr. T. J. Scofield:—That is all, Doctor.

(To be continued.)

Correspondence

Treatment of Incised Wounds Involving Tendons

To the Editor:—That the usual treatment of incised wounds involving tendons at their primary dressing is faulty is attested by the fact that a large number of fingers have to be amputated because of subsequent infection. While a large number of cases are infected from beginning, a certain percentage become infected from improper handling under unfavorable surroundings. There is abundant evidence to prove that the operating room is the place to suture tendons, and that only a limited number of cases are favorable for the immediate repair of the severed tendons.

In my hospital service I have insisted that patients with these injuries be sent at once to the operating room, simply a sterile dressing being applied in the dispensary.

Absolute asepsis in the handling of these clean tendon cases is the first requisite, for the delicate endothelial lining of the tendon sheaths has little or no resistance against invading organisms. If the tendon is sutured in the face of any infection, or if infection subsequently develops, there is distinctly more loss of tendon and hence greater impairment of function than in cases in which no primary repair was attempted. Although good results have been obtained in the primary suturing of tendons when done in the physician's office or the surgical dispensary, yet the fact remains that an unnecessary risk is taken, and the practice is to be condemned.

Patients applying for treatment can be roughly grouped into three classes:

1. Clean cases.
2. Cases in which infection is liable to occur.
3. Cases in which infection is already present.

In all cases coming under Class 1, the physician should carefully scrub his hands and put on gloves before making any examination. The surrounding skin is painted with 5 per cent. tincture of iodin, the wound washed out with normal saline solution at body temperature, and a sterile dressing applied. The part is dressed on a splint and the patient taken to a hospital for the repair of the tendons. If hospital facilities are not available and the physician has to suture in his office, the same aseptic technic should be carried out as if the peritoneum was to be opened.

Cases coming under Class 2 are treated in the same manner as those in Class 1, except that no attempt at suturing is done. Also the patient is instructed to keep the parts soaked with a mild antiseptic solution. If no infection occurs, suturing is permissible after seven days, the same rules holding good as in clean cases. If infection does occur, the wound is kept wide open and the parts soaked for fifteen minutes in every hour in a weak antiseptic solution. The various conditions arising must be cared for as they occur. These patients have their secondary operation for the repair of the tendons in about six to eight weeks after the wound has healed.

For those cases in which infection is already present, the treatment will depend largely on conditions found, the principal point being to supply adequate drainage. Bier's hyperemia, wet dressing and rest will in the majority of cases assist in getting rid of the infection. In these cases it is well to wait about three months after the infection has subsided before doing a secondary tenorrhaphy.

Clean cases referred to me at the hospital are taken at once to the operating room, the dressings removed and the hand painted (wound excepted) with 5 per cent. tincture of iodin. The wound is gently irrigated with a mild antiseptic solution for about fifteen minutes. Under nitrous oxid anesthesia the tendons are sutured, fine arterial needles and 00 catgut or silk being used. To bring the torn flexor tendons into the wound, the hand is strongly flexed; for the extensor, strongly extended. No instruments are used to grasp the tendons, and the practice of grasping the severed ends with hemostats is mentioned only to condemn it. Two or three mattress sutures and one or two interrupted ones are used on the tendons. The wound must be absolutely dry before it is closed. If this is impossible, a few strands of silkworm gut are inserted to prevent blood clot. The hand is dressed on a splint; in the case of the flexed tendons, over a rolled bandage so as to relieve tension on the tendons.

George M. Dorrance, M.D., Philadelphia.

Exhaustion of the Supply of Ichthyol

To the Editor:—Owing to the restrictions which the belligerent countries have placed on the shipment of drugs and chemicals to the United States, we have recently found it necessary to advise the drug trade that we can no longer supply ichthyol. Ichthyol is manufactured only in Germany, from raw material found only in Austria. We are the sole importers, and our supply has become exhausted. You are aware, of course, that both national and state officials are at present engaged in prosecuting dealers in fraudulent substitutes for ichthyol.

We believe that it is to the interest, not only of Merck & Co., but also of the medical profession, that this state of affairs should be known to physicians.

Merck & Co., New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INOCULATION FOR HAY-FEVER

To the Editor:—Where can I find information bearing on the subject of inoculation for hay-fever?

J. S. Carpenter, Jr., M.D., Pottsville, Pa.

Answer.—The following is a partial list of references on this subject, covering 1915 and 1916.

Oppenheimer, S., and Gottlieb, M. J.: Pollen Therapy in Pollinosis, *Med. Rec.*, New York, March 18, 1916; abstr., The Journal, April 1, 1916, p. 1058.

Strouse, S., and Frank, I.: Pollen Extracts and Vaccines in Hay-Fever, The Journal, March 4, 1916, p. 712.

Noyes, M. L.: Report of Two Hay-Fever Cases Treated With the Pollen Extract, The Journal, March 4, 1916, p. 738.

Morrish, R. S.: Treatment of Asthma and Hay-Fever by Active Immunization, *Michigan State Med. Soc. Jour.*, August, 1915.

Iskowitz, H.: Multi-Pollen Vaccines in Treatment of Hay-Fever, *Med. Rec.*, New York, Aug. 14, 1915.

Oppenheimer, S., and Gottlieb, M. J.: Immunization of Pollenosis, *New Jersey Med. Soc. Jour.*, September, 1915; abstr., The Journal, Sept. 25, 1915, p. 1142.

Goodale, J. E.: Pollen Therapy in Hay-Fever, *Ann. Otol., Rhinol. and Laryng.*, June, 1915.

Goodale, J. L.: Pollen Therapy in Hay-Fever, *Boston Med. and Surg. Jour.*, July 8, 1915.

Oppenheimer, S., and Gottlieb, M. J.: Pollinosis (Hay-Fever): Consideration of Its Treatment by Active Immunization, *Bull. Med. Chir. Fac. Maryland*, July, 1915; abstr., The Journal, July 31, 1915, p. 460.

Oppenheim, Seymour, and Gottlieb, Mark J.: The Active Immunization of Hay-Fever, *New York Med. Jour.*, Feb. 6, 1916.

Manning, E. T.: Hay-Fever: Its Treatment by Injection of a Solution of Ragweed Pollen, The Journal, Feb. 20, 1915, p. 655.

Cook, R. A.: Treatment of Hay-Fever by Active Immunization, *Laryngoscope*, February, 1915.

LITERATURE ON PITUITARY BODY

To the Editor:—Please refer me to recent articles, last year or so, in The Journal, on the pituitary body, pituitrin and pituitary extract.

Peyton Green, M.D., Wytheville, Va.

Answer.—The following is a list of references to articles on this subject:

Kahn, H., and Gordon, L. E.: The Use of Pituitary Extract as a Coagulant in the Surgery of the Nose and Throat, The Journal, Jan. 23, 1915, p. 301.

Weed, L. H., and Cushing, H.: Studies on Cerebrospinal Fluid: Effect of Pituitary Extract on Its Secretion (Choroidorrhea), *Am. Jour. Physiol.*, January, 1915; abst., The Journal, Feb. 20, 1915, p. 693.

Simpson, S., and Hill, R. L.: Effect of Repeated Injections of Pituitrin on Milk Secretion, *Am. Jour. Physiol.*, February, 1915; abst., The Journal, March 6, 1915, p. 856.

Robertson, T. B., and Burnett, T. C.: Influence of Anterior Lobe of Pituitary on Growth of Carcinomata, *Jour. Exper. Med.*, March, 1915; abst., The Journal, March 27, 1915, p. 1108.

Quigley, J. K.: Pituitary Extract in Obstetrics, THE JOURNAL, April 10, 1915, p. 1222.

Pituitary Standardization, editorial, THE JOURNAL, April 10, 1915, p. 1249.

Hewlett, A. W.: Effect of Pituitary Substances on Fever Pulse, *Michigan State Med. Soc. Jour.*, April, 1915; abstr., THE JOURNAL, April 17, 1915, p. 1360.

Drugs Which Stimulate Sympathetic Endings: Pituitary, THE JOURNAL, April 24, 1915, p. 1399.

Norris, R. C.: Use and Abuse of Pituitrin in Obstetrics, *Am. Jour. Obst.*, May, 1915; abst., THE JOURNAL, May 29, 1915, p. 1874.

Ludlum, S. D. W., and Corson-White, E. P.: Thymus and Pituitary in Dementia Praecox, *Am. Jour. Insan.*, April, 1915; abstr., THE JOURNAL, June 5, 1915, p. 1939.

Zülfig: Rupture of Uterus Under Hypophysis Extract, *München. med. Wchnschr.*, June 1, 1915; abstr., THE JOURNAL, July 24, 1915, p. 367.

Fry, H. J. B.: Pituitary Gland in Diabetes Mellitus and Disorders of Glands of Internal Secretion, *Quart. Jour. Med.*, July, 1915; abstr., THE JOURNAL, Aug. 7, 1915, p. 561.

Sewall, E. C.: Operation on the Hypophysis According to Hirsch's Method, Presentation of Case with Brain, Eye and Other Symptoms, THE JOURNAL, Aug. 21, 1915, p. 681.

Composition of the Pituitary Body, editorial, THE JOURNAL, Sept. 4, 1915, p. 882.

Kupferle, L., and von Szily, A.: Radiotherapy of Hypophysis Tumors, *Deutsch. med. Wchnschr.*, July 29, 1915; abst., THE JOURNAL, Sept. 11, 1915, p. 985.

CORNEAL TRANSPLANTATION

To the Editor:—In THE JOURNAL for April 29, p. 1419, you say:

> "Recent improvements in the technic of corneal transplantation have made this a useful surgical procedure in some of these conditions."

Kindly advise me if you were referring to a particular operation that is successful in corneal transplantation, or were making a general statement?

D. W. STEVENSON, M.D., Akron, Ohio.

ANSWER.—The general operation of keratoplasty was referred to. This operation would be justifiable only in selected cases in which the leukoma was extensive enough to cover the entire cornea, and in which an operation for optical iridectomy would not offer any prospect of success. The original answer covered a lesion probably more extensive than it was intended to convey.

EYE, EAR, NOSE AND THROAT JOURNALS

To the Editor:—Please give me the name and address of all the journals published in this country devoted to the eye, ear, nose and throat.

SAMUEL KENNEDY, M.D., Shelbyville, Ind.

ANSWER.—The following is a list of such journals:

Ophthalmic Literature, Majestic Building, Denver. Established 1911; Edward Jackson, editor and publisher; monthly; $5.

Ophthalmic Record, 7 West Madison Street, Chicago. Established 1891; H. A. Fox, publisher; Frank Brawley, editorial secretary; monthly; $4.

Journal of Ophthalmology and Oto-Laryngology, 32 North State Street, Chicago. Established 1906; Willis O. Nance and Albert H. Andrews, editors and publishers; monthly; $2.

The Index of Oto-Laryngology, 108 North State Street, Chicago. Established 1911; Joseph C. Beck, editor and publisher; monthly; $5.

American Journal of Ophthalmology, Metropolitan Building, St. Louis. Established 1884; Adolf Alt, editor and publisher; monthly; $3.50.

Annals of Ophthalmology, Mermod-Jaccard Building, St. Louis. Established 1892; Mr. Jones H. Parker, publisher; Meyer Wiener and Clarence Loeb, editors; quarterly; $4.

Annals of Otology, Rhinology and Laryngology, St. Louis. Established 1892; Mr. Jones H. Parker, publisher; H. W. Loeb, editor; quarterly; $4.

Laryngoscope, 3858 Westminster Place, St. Louis. Established 1896; M. A. Goldstein, editor and publisher; monthly; $5.

Archives of Ophthalmology, New York. Established 1869; G. P. Putnam's Sons, publishers; Arnold Knapp, editor; bimonthly; $5.

Journal of Ophthalmology, Otology and Laryngology, 414 Walnut Street, Cincinnati. Established 1889; Cramer Publishing Company, publishers; G. W. Mackenzie, editor; monthly; $3.

Ophthalmology, Cobb Building, Seattle. Established 1904; H. V. Wurdemann, editor and publisher; quarterly; $5.

ERADICATION OF TATTOO MARKS

To the Editor:—Can you supply us with any references on the subject of the eradication or obliteration of tattoo marks. We have gone over our files, but have failed to find any references on the subject.

FRANCES FRISBEE, Tacoma, Wash.
Librarian, Tacoma Academy of Medicine.

ANSWER.—Articles on the removal of tattoo marks appeared in THE JOURNAL, in the Queries and Minor Notes Department, Aug. 22, 1911, Sept. 12, 1912, and Jan. 24, 1914. In these articles the treatment of this condition was discussed.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, July 5. Sec., Dr. H. C. De Vighne, Juneau.

CALIFORNIA: San Francisco, June 27. Sec., Dr. Charles B. Pinkham, R. 527 Forum Bldg., Sacramento.

COLORADO: Denver, July 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DELAWARE: Dover and Wilmington, June 20-22. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Jacksonville, June 13-14. Sec., Dr. E. W. Warren, Palatka.

GEORGIA: Atlanta and Augusta, June 1. Sec., Dr. C. T. Nolan, Marietta.

ILLINOIS: Chicago, June 21-23. Sec., Dr. C. St. Clair Drake, Springfield.

IOWA: Iowa City, June 8-10. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

KANSAS: Topeka, June 13. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 13-15. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, June 8-10. Sec., Dr. E. L. Eckert, 716 Macheca Bldg., New Orleans.

MAINE: Augusta, July 6-7. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MICHIGAN: Detroit, June 1-3; Ann Arbor, June 19-21. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, June 6-9. Sec., Dr. Thomas S. McDavitt, 814 Lowry Bldg., St. Paul.

MISSISSIPPI: Jackson, June 20-21. Sec., Dr. J. D. Gilleylen, Jackson.

MISSOURI: St. Louis, June 13-15. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEBRASKA: Lincoln, June 8-9. Sec., Dr. H. B. Cummins, Seward.

NEW HAMPSHIRE: Concord, June 26-27. Sec., Dr. W. T. Crosby, The Beacon, Manchester.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Alexander MacAlister, 429 E. State St., Trenton.

NORTH CAROLINA: Raleigh, June 27-30. Sec., Dr. H. A. Royster, Raleigh.

NORTH DAKOTA: Grand Forks, July 4. Sec., Dr. G. M. Williamson, Grand Forks.

OHIO: Columbus, June 6-9. Sec., Dr. George H. Matson, State House, Columbus.

OREGON: Portland, July 5-7. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

RHODE ISLAND: Providence, July 6-7. Sec., Dr. Gardner T. Swarts, Room 313 State House, Providence.

SOUTH CAROLINA: Columbia, June 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TENNESSEE: Knoxville, Memphis and Nashville, June 16-17. Sec., Dr. A. B. DeLoach, Scimitar Bldg., Memphis.

TEXAS: San Antonio, June 27-29. Sec., Dr. John S. McCelvey, Temple State Bank Bldg., Temple.

UTAH: Salt Lake City, July 3. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VIRGINIA: Richmond, June 20-23. Sec., Dr. J. N. Barney, Fredericksburg.

WASHINGTON: Tacoma, July 4. Sec., Dr. C. N. Suttner, Walla Walla.

WISCONSIN: Milwaukee, June 27-29. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

WYOMING: Laramie, June 14-16. Sec., Dr. H. E. McCollum, Laramie.

Scholarships and Loan Funds in Medical Schools

Official statements received from the various medical colleges show that of the ninety-five now holding sessions, forty-seven have provided free scholarships or loan funds, or both, for deserving students who are without means otherwise to procure a medical education. In two instances (Alabama and Georgia) the scholarships are for residents of the state, but in the other colleges they are, with a few possible exceptions, open to all applicants. These scholarships sometimes merely cover tuition fees, but most of them cover all fees for the year, and some cover fees for the four years. A few furnish the student in addition with funds for part or all other expenses. Altogether the reports received indicate that there are 296 scholarships in forty-two medical schools, and that loan funds have been provided by eighteen medical schools. It is quite evident, therefore, that no students who deserve to succeed need to be shut out from obtaining a medical education. It is interesting to state that all but three of the institutions providing scholarships are high grade medical schools, having been rated in Class A by the Council on Medical Education. The colleges having scholarships and loan funds are as follows:

SCHOLARSHIPS IN MEDICAL SCHOOLS

University of Alabama, School of Medicine	66
Leland Stanford Junior University, School of Medicine	3
University of California Medical School	1
University of Colorado, School of Medicine*	1
George Washington University Medical School*	5
Georgetown University, School of Medicine	2

Atlanta Medical College	12
University of Georgia, Medical Department	1
Hahnemann Medical College and Hospital, Chicago*	5
Northwestern University Medical School	9
Rush Medical College	6
University of Illinois, College of Medicine*	7
Indiana University, School of Medicine*	10
Bowdoin Medical School	1
Johns Hopkins University, Medical Department	7
University of Maryland, School of Medicine	6
Boston University, School of Medicine*	30
Medical School of Harvard University*	27
Detroit College of Medicine and Surgery	3
University of Minnesota Medical School*	1
Washington University Medical School	1
University of Missouri, School of Medicine	1
Dartmouth Medical School	2
Columbia University, College of Physicians and Surgeons	36
University of Buffalo, Department of Medicine	1
New York Medical College and Hospital for Women	1
Syracuse University, College of Medicine	1
University of North Carolina, School of Medicine	1
University of Cincinnati, College of Medicine	10
Western Reserve University, School of Medicine	1
University of Oregon, Department of Medicine	2
Hahnemann Medical College and Hospital of Philadelphia*	3
Jefferson Medical College	2
University of Pennsylvania, School of Medicine*†	3
Woman's Medical College of Pennsylvania*	1
Medical College of the State of South Carolina	7
University of Tennessee, College of Medicine	1
Meharry Medical College	5
Vanderbilt University, Medical Department	4
University of Texas, Department of Medicine*	1
Medical College of Virginia	10
University of Virginia	2
Total in 42 medical schools	296

* Have loan funds also.

† Has fifty or more scholarships for graduates of Philadelphia high schools.

LOAN FUNDS

The colleges above which are marked by an asterisk (*) also have loan funds for deserving but needy students. Such funds are available also at other medical schools, as follows:

Yale University, School of Medicine, New Haven, Conn.
Howard University, School of Medicine, Washington, D. C.
Tulane University of Louisiana, School of Medicine, New Orleans.
University of Nebraska, College of Medicine, Omaha.
University of North Dakota, College of Medicine, University, N. D.
University of Wisconsin Medical School, Madison, Wis.

Proportion of Physicians to Population in the United States

The accompanying table shows that the present proportion of physicians to population in the United States ranges from one to 365 in the District of Columbia to one to 1,217 in North Dakota, the average in the entire country being one physician to every 691 people. In his report on Medical Education in Europe, Abraham Flexner showed that in 1912 the proportion of physicians to population in the German empire was one to 1,940; in Austria, one to 2,120, and in France, one to 2,834. In the table the figures regarding population are from the 1915 estimate of the United States Census Bureau and the totals of physicians are from the fifth edition of the American Medical Directory, just published. The table follows:

PROPORTION OF PHYSICIANS TO POPULATION

State	Population	Physicians	People to Each Physician
Alabama	2,301,277	2,569	892
Arizona	247,299	307	806
Arkansas	1,713,102	2,637	649
California	2,848,275	5,687	501
Colorado	935,799	1,733	540
Connecticut	1,223,583	1,678	728
Delaware	211,598	261	811
District of Columbia	358,679	1,482*	365
Florida	870,802	1,321	659
Georgia	2,816,289	3,421	823
Idaho	411,996	439	939
Illinois	6,069,519	10,648	570
Indiana	2,798,142	4,872	574
Iowa	2,221,038	3,751	592
Kansas	1,807,221	2,683	674
Kentucky	2,365,185	3,584	660
Louisiana	1,801,306	2,060	874
Maine	767,638	1,205	637
Maryland	1,351,941	2,292	546
Massachusetts	3,662,339	5,869	624
Michigan	3,015,442	4,360	692
Minnesota	2,246,761	2,447	918
Mississippi	1,926,778	2,048	941
Missouri	3,391,789	6,399	530
Montana	446,054	636	717
Nebraska	1,258,624	1,911	659
Nevada	102,750	154	667
New Hampshire	440,584	690	639
New Jersey	2,881,840	3,239	889
New Mexico	396,917	430	923
New York	10,086,568	15,670	646
North Carolina	2,371,095	2,102	1,128
North Dakota	713,083	586	1,217
Ohio	5,038,627	8,045	626
Oklahoma	2,114,307	2,634	803
Oregon	809,490	1,187	741
Pennsylvania	8,383,992	11,502	729
Rhode Island	602,765	772	781
South Carolina	1,607,745	1,399	1,149
South Dakota	680,046	676	1,006
Tennessee	2,271,379	3,457	657
Texas	4,343,710	6,240	693
Utah	424,300	465	912
Vermont	362,452	668	543
Virginia	2,171,014	2,547	852
Washington	1,471,043	1,695	868
West Virginia	1,359,474	1,729	783
Wisconsin	2,473,533	2,803	882
Wyoming	174,148	251	694
Totals	100,399,318	145,241	691

* This total includes about 500 physicians who are connected with the government medical services and who are not in practice among the civilian population of the District of Columbia. Including these, there would be one physician to every 242 people.

Minnesota January Report

Dr. Thomas S. McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, Jan. 4-6, 1916. The total number of subjects examined in was 16; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 6, of whom 5 passed and 1 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Med. and Surg.	(1915)	81
Harvard University	(1915)	91
St. Louis University	(1915)	88
University of Pennsylvania	(1914)	90
University of Toronto	(1906)	87

FAILED

College	Year Grad.	Per Cent.
Hamline University	(1904)	67

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University	1907)	Illinois
Rush Medical College	(1912) Illinois; (1914, 2)	Wisconsin
University of Illinois	(1915)	Illinois
State University of Iowa College of Medicine	(1898)	Iowa
College of Phys. and Surgs., Baltimore	(1904)	Illinois
Johns Hopkins University	(1913)	Maryland
Washington University	(1908)	Illinois
Marquette University	(1913)	Wisconsin
Western University, London	(1907)	Iowa

New Mexico January Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fé, Jan. 10-11, 1916. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 2, both of whom passed. Two candidates were licensed through reciprocity and 14 on satisfactory credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Bennett Medical College	(1911)	80
Medico-Chirurgical College of Kansas City	(1901)	79

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
John A. Creighton Medical College	(1915)	Kansas
Gate City Medical College*	(1904)	Oklahoma

LICENSED ON SATISFACTORY CREDENTIALS

College	Year Grad.	Total No. Licensed
University of Alabama	(1909)	1
College of Physicians and Surgeons, Los Angeles	(1914)	1
University of Southern California	(1904)	1
Denver College of Medicine	(1899)	1
University of Colorado	(1913)	2
Northwestern University	(1912)	1
Tulane University of Louisiana	(1886)	1
University of Louisville	(1911)	1
University of Buffalo	(1912)	1
Cleveland College of Physicians and Surgeons	(1910)	1
University of Oklahoma	(1912)	1
Medico-Chirurgical College of Philadelphia	(1913)	1
National School of Medicine, Mexico	(1913)	1

* This college was officially reported as not recognized by the Texas State Board of Medical Examiners.

Medicolegal

Duty to Discharge Persons Restored to Sanity

(Lawrence vs. Barlow et al. (W. Va.), 87 S. E. R. 380)

The Supreme Court of Appeals of West Virginia reverses a judgment which dismissed habeas corpus proceedings instituted by the petitioner to secure his discharge after he had been committed to a hospital for the insane; and it orders his release. Many witnesses were examined in relation to the sanity of the petitioner. The physicians called by the defendants said that he had paranoia. The superintendent of the hospital thought that he had been suffering from it since 1887. But it was said that this theory was repelled by the fact that he was in an insane asylum in Pennsylvania in 1887 and released as restored; that he was again in a hospital in 1895, and in an insane asylum in California for a period in 1902, and again released as restored; that he was not afflicted this way again until 1913; that during the lucid periods he was a good citizen and prosperous business man; that he was released on bond from the hospital in January, 1914, and his trial was had in November, 1914; and that he was out of the hospital about ten months without injury to himself. From this undisputed history it would seem, the court says, that the hospital physicians were mistaken in their diagnosis, or in the progressive nature of the disease. But without discussing or calling into question the correctness of their theories, it was quite certain that there was abundant reliable testimony in the case to show conclusively that, if the petitioner was insane when he was committed to the hospital in 1913, he had been sufficiently restored at the time of the trial on the habeas corpus proceeding to make it improper to continue him in confinement. Should the theory of the hospital physicians prove correct, and the malady from which they said he was suffering progress until it should reach the stage that he would be unable to care for himself or his property, and it should become necessary for some one to care for him, then the hospital for the insane provided for such purpose by the state would be to him a haven of mercy; until then it would be a place of torment. Under the code of West Virginia any person confined in one of the hospitals for the insane of the state as an insane person, "except in the case of a person charged with crime and subject to be tried therefor, or convicted of a crime and subject to be punished therefor, when in a condition to be so tried or punished," may be delivered to any friend who will give bond and security with the conditions mentioned in Section 10 of Chapter 58. If such person shall be restored to sanity while in the custody of such bondsmen, it is the duty of the persons having control of such hospital to discharge him from such custody and give him a certificate thereof. If the persons in charge of such hospital fail or refuse to release such person from custody after reasonable demand, the writ of habeas corpus is a proper remedy to secure such release.

Sufficient Evidence of Violating Medical Act—Instructions to Jury

(State vs. Booher (Iowa), 155 N. W. R. 167)

The Supreme Court of Iowa affirms a judgment of conviction of practicing medicine without a license. The court says that the defendant contended that the evidence was not sufficient to show that he was guilty of violating the state medical act, or that he held himself out as a physician and surgeon, or that he publicly professed to cure and to heal, or that he made a practice of healing and curing. The evidence was short. The substance of it was that one witness went to the defendant's house for the purpose of ascertaining if the defendant would treat him for rheumatism; he said he did not remember what the defendant told him, but he took four or five treatments, the treatments being performed while the witness was lying on a sort of cabinet or bench, and the defendant worked on his spine and legs. The witness did not have any arrangement as to charges, and never paid the defendant anything. Another witness testified that the defendant came to his house and gave him a treatment. This was done by an adjustment of some of the joints of the witness' spine. He was stretched out on a bench which the defendant had brought with him. This witness took three or four treatments and gave the defendant $5. A third witness said that the defendant treated his wife for goiter; treatment was administered by rubbing the goiter and rubbing the spine; the patient also had gas on the stomach, and the defendant rubbed the stomach. She took twenty-four treatments, and for the services rendered to her the defendant received $20. A fourth witness testified that he had one of his arms out of place; that he had sought treatment without avail, and, finally, meeting the defendant on the street, asked him to see if he could put his arm in place, which he did. The court thinks the evidence was sufficient to take the case to the jury on the question as to whether or not the defendant assumed the duties of a physician, and that he publicly professed to cure and heal. Nor was an otherwise correct instruction given to the jury erroneous because it omitted the thought, embodied in a similar instruction requested by the defendant, that it must be shown by the state that the defendant did publicly profess to be a physician, or surgeon, or obstetrician, and assume the duties of such, or that he made a practice of prescribing and furnishing medicine for the sick, etc. These things are prohibited by the statute, but the statute provides that any person shall be held as practicing medicine, surgery or obstetrics who shall publicly profess to be a physician, surgeon or obstetrician, and it also provides that if a person practices medicine, surgery or obstetrics, or publicly professes to cure or heal, he is guilty, etc. Neither was there error in a refusal to give an instruction which embodied the same thought and the further thought that the defendant did not tell the patients that he could cure or heal them. An instruction was given that "the word publicly means openly, a declaration made in a public manner," while an instruction was requested by the defendant to the effect that the word publicly means "openly, a declaration publicly made, or in a public manner." There was no material difference in the two.

Burden of Proof in Actions for Negligence

(Niebel et al. vs. Winslow (N. J.), 95 Atl. R. 995)

The Court of Errors and Appeals of New Jersey, in reversing a judgment recovered by the plaintiffs, holds that, in an action for damages against a physician for the negligent performance of a surgical operation, in that a gauze sponge was negligently left in the abdomen of the plaintiff, it was injurious error to charge the jury at the request of counsel that, "If you find that the gauze was left in the abdomen of plaintiff and the incision sewed up by defendant or allowed to heal over it, the burden of proof is on defendant to show that it was not left there by any carelessness or negligence of his." In an action of negligence, the burden of proving the negligence of the defendant is on the plaintiff, and, as a proposition of law for the jury's guidance at the close of the case, it never shifts to the defendant. This right of the defendant to have the plaintiff bear the burden of the affirmative is a substantial one, the denial of which is injurious error. Neither the single fact nor the group of facts stated in the requested charge shifted to the defendant the burden of proof which, notwithstanding such facts, remained with the plaintiff. The facts recited were a part of the plaintiff's case, in that they were steps in the establishment of the negligence of the defendant, the burden of proving which was on the plaintiff; the effect therefore of the request was that the jury was told that, if the plaintiff had established these steps in her proof of the defendant's negligence, the burden of exculpating himself from the complete charge of negligence was shifted to the defendant. The practically injurious nature of the request will at once be apparent when it is remembered that in this case the operation, although performed by the defendant, a private practitioner, was performed by him in a hospital where he was assisted by trained, resident nurses, presumably in the employ of the hospital and familiar with their duties. While the testimony was meager as to the precise nature of these duties, it was infer-

able from the evidence and from the terms "operator" and "assistants" that it was the duty of the latter at or just before the close of the operation to count the sponges in use, which at that critical stage the operator himself could not do without jeopardy to his patient. The very meagerness of the proof and the fact that presumptions had to be met and inferences to be drawn made the question of the burden of proof all the more important, since it may well be that the state of the proofs was such that whoever had to bear the burden of proof must fail because of such burden. In such a case the burden must remain where the law places it, or the resulting judgment must be reversed. Nor was the injurious error of charging the plaintiff's request in any wise cured or rendered harmless by the fact that the correct rule had been stated to the jury in the body of the charge, for how was the jury to know which was the law?

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, DETROIT, JUNE 12-16.

Alpha Omega Alpha Society, Detroit, June 12.
American Academy of Medicine, Detroit, June 9-12.
American Association of Anesthetists, Detroit, June 12.
American Proctologic Society, Detroit, June 12.
American Therapeutic Society, Detroit, June 9-10.
Maine Medical Association, Portland, June 7-8.
Massachusetts Medical Society, Boston, June 6-7.
Montana State Medical Association, Miles City, July 12-13.
National Association for Study of Epilepsy, Detroit, June 16.
New Jersey Medical Society, Spring Lake, June 20-22.
Rhode Island Medical Society, Providence, June 1.
Washington State Medical Association, Seattle, July 12-14.
Western Roentgen Society, St. Louis, June 9-10.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS

Tenth Triennial Session, held at Washington, D. C., May 9-10, 1916

The President, DR. WILLIAM S. THAYER, Baltimore, in the Chair

SYMPOSIUM ON SYPHILIS

Diagnosis and Treatment of Syphilis

DR. JOHN A. FORDYCE, New York: The future of the syphilitic individual depends on the early diagnosis of his infection and the intensity with which treatment is carried out in the first six months. In the accomplishment of this purpose, the modern aids to diagnosis have rendered great service. In primary syphilis, when the spirochetes are demonstrated and the Wassermann reaction is negative, it is possible to cure syphilis with salvarsan alone. It cannot be determined how many doses are required. It is better, therefore, to err on the side of safety and to give, at least, eight or ten doses and follow this with mercury for six months. In secondary syphilis, when the early rash is present and the Wassermann reaction positive, it is better to precede the salvarsan with several injections of a mercurial salt, preferably a soluble one, on account of the economy of time. In this way an effect is produced on the spirochetes, and when salvarsan is given the temperature reaction and an intensification of the rash, that is, a Herxheimer reaction, can be avoided. After the salvarsan is begun the combined treatment is continued. Salvarsan is given in doses of from 0.3 to 0.5 gm. for men and from 0.25 to 0.4 gm. for women at intervals of one or two weeks, depending on the tolerance of the patient. Two or three such courses are given with rest periods of six weeks. The mercurial injections are given every day if a soluble salt is employed, or once a week if an insoluble one. My preference in case of the former is mercuric chlorid in courses of from twenty to thirty injections, given daily or every other day. Of the insoluble preparations, gray oil (in the form of mercurial cream, of which 5 minims represent 1 grain), in series of ten to twelve injections, or mercuric salicylate (40 per cent.), from 1 to 3 grains gradually increased, from ten to twelve injections constituting a course. Each series is followed by a rest period of six weeks and then the procedure is repeated. Wassermann tests are made periodically, but treatment is not interrupted in spite of a negative reaction until the adequate amount of medication has been given.

We should keep in mind the possibility of involvement of the nervous system in secondary syphilis. A complete record should be made when the patient comes under observation so that it can be compared with any subsequent developments. In this way it is possible to detect the very earliest changes which manifest themselves objectively in the nervous system. The most frequent are irregularity of the pupils, persistent headache, and optic neuritis or auditory disturbance. In latent syphilis, with a positive Wassermann reaction, an investigation should be made of the cardiovascular and nervous systems or of previous involvement of any of the viscera, as, for instance, syphilitic hepatitis. In cardiovascular syphilis or bone involvement, the prolonged use of mercury in connection with potassium iodid is probably of more value than the haphazard use of occasional doses of salvarsan. The criteria of cure are a negative Wassermann reaction for, at least, a year, continuing so after a provocative injection of salvarsan, and a normal spinal fluid, with the exceptions noted.

Treatment of Syphilis of the Central Nervous System

DR. HOMER F. SWIFT, New York: The best treatment of syphilis of the central nervous system is the prophylaxis of syphilis; next in importance is the proper treatment of syphilis in the early stages. No patient should be released from treatment until his cerebrospinal fluid has been normal, in so far as pleocytosis and the Wassermann reaction are concerned. At times, there seems to be a slight excess of globulin which cannot be eradicated. The problem is complicated by the peculiarities of the subarachnoid space, which is directly continuous with the perivascular, perineural and perineuronal lymph spaces. Probably the spirochetes are carried along these channels, as the various lesions can be explained most easily in this way. The plugging of these channels probably not only comprises the nutrition of the nerve cells, but also increases the difficulties of bringing the therapeutic agents in contact with the exudate. The separateness of the subarachnoid space from the blood vessels and general lymphatic system is well known. Antibacterial immune bodies, vital stains and most drugs are not excreted into the cerebrospinal fluid. Even drugs which act on the central nervous system when given by mouth or subcutaneously act in much weaker concentration when injected subdurally. In many cases general treatment affects the course of syphilis in the cerebrospinal axis favorably; this is especially marked in the early forms of the disease. The tendency of cerebrospinal syphilis to relapse has long been known, while the failure of tabes to respond to mercurial treatment has made therapeutic nihilists of most neurologists. Even the marked improvement of most cases of cerebrospinal syphilis is often not followed by a parallel improvement in the cerebrospinal fluid.

The desirability of subarachnoid therapy is evident. The problem is to find some beneficial therapeutic substance which can be introduced repeatedly without injury to the delicate nerve tissue. The preparations used today are (1) the serum obtained from patients shortly after intravenous injections of salvarsan; (2) serum to which small quantities of salvarsan have been added; (3) neosalvarsan in small quantities and weak concentration, and (4) mercurialized serum. The direct application of mercury is theoretically of value. There is, however, danger of repeatedly injecting mercurialized horse serum because of the liability to the development of a general anaphylactic state. In the general treatment of syphilis of the central nervous system, if the patient shows signs of involvement of the cerebral meninges, or brain, salvarsan should be preceded by a short course of mercury to prevent the occurrence of a Herxheimer reaction in the region of the vital centers. If the presence of gummas is suspected, a vigorous course of potassium iodid is of value. In the meningitis of the secondary period, the response to alternate courses of salvarsan and mercury has been prompt and permanent in a number of my cases. In the tertiary form of the disease, alternate courses of mercury and iodid and of salvarsan are usually followed by decided improvement. The fluid should

be examined before and after each course. If it becomes normal after a few months' treatment, the prognosis is good.

In tabes, because of the apparent sensitiveness to mercury, it is better to start the treatment with small doses of salvarsan intravenously, gradually increasing and giving an injection a week for six or eight doses. If at the end of this course the Wassermann reaction is weaker, then a course of mercury may be tried, followed by another course of salvarsan. If the reaction does not change appreciably, intraspinal therapy is of value. The aim should be to bring the fluid to normal and keep it there. This can be done in a majority of cases; 75 per cent. of our cases have a negative reaction with 1 c.c. of fluid; half of them have a negative reaction with 2 c.c. Fourteen of these remain negative with 2 c.c. Only four have shown slight relapses. Relapses in the fluid are usually accompanied by clinical relapses. In only one patient with normal fluid have there been advanced signs of degeneration; in the presence of rapidly advancing tabes or of optic atrophy, it is desirable to introduce intraspinal therapy in addition to general treatment from the beginning. The treatment of paralytic dementia has been disappointing, although the number of remissions and the amount of improvement under salvarsan and serum intraspinally is many times greater than the number of remissions in untreated paretics, and although occasionally the Wassermann in the blood and spinal fluid is negative, the ultimate outlook is usually bad. In the treatment of syphilis of the central nervous system, the objects of therapy are threefold: (1) the cure of disease; (2) the amelioration of symptoms, and (3) the prolongation of life. With the possible exception of paresis, all of these objects may be obtained.

Syphilis and Society

DR. HUGH CABOT, Boston: At the outset of any attempt to estimate the value of reporting syphilis as a public health measure, it is necessary to distinguish between true reporting and false reporting. True reporting requires that the case be reported to the health authorities by name and address precisely as are cases of other contagious diseases. False reporting is reporting by number or by some quasisecret method. The opinion of the public health officer is generally in favor of reporting. The opinion of the practicing physician, and particularly of those physicians who deal with syphilis on a large scale, has been almost unanimously opposed to reporting. They reason that if physicians are required to report these patients by name they will in a short time have no patients to report. After a careful study of the question of reporting, I cannot avoid the opinion that it has been worthless as a method of assisting in the control of this particular variety of contagious disease. Public opinion has stamped syphilis as a shameful disease, without sufficient justification, and has therefore driven these unfortunate persons into hiding. Nine states have legislation which purports to make syphilis a bar to marriage, but in most of them the laws are such as to be absolutely worthless.

To sum up the question of the benefit to be derived by reporting cases of syphilis to the public health authorities and the requiring of certificates for marriage, my opinion is this: In the present state of public opinion the reporting of syphilis can have no scientific value in the production of statistics and can have no medical value in the control of the disease. Scandinavian countries have undertaken the wholesale treatment of venereal disease as a public undertaking, and though much difference of opinion exists in regard to the details, I have heard no adverse opinion in regard to the principle. Here, therefore, lies a most fruitful field of effort. The state, the municipality and the university or corporation hospital must prepare to deal with syphilis on a large scale not only in regard to diagnosis but also with reference to treatment and subsequent supervision. There is no reason why society should fear to separate a patient from the private physician. The management of syphilis by the private practitioner has fallen far short of reasonable success, in large part because the interests of the community can in no way be safeguarded. If public or quasipublic institutions should offer as part of their hospital system thoroughly competent treatment of syphilis, it can hardly be doubted that the public in general would at once take advantage of such an offer.

Discussion on Symposium on Syphilis

DR. ISADORE DYER, New Orleans: In a review of a large number of general hospitals it was ascertained by me that practically all of them refused admission to early or incipient cases of syphilis; that the ambulant case was generally not wanted, and that all cases of syphilis, as such, are accepted on sufferance. The outdoor clinics everywhere show great preponderance over the cases of syphilis in indoor services, and where any statistics could be had, the clinics handled early syphilis almost always without the proper consideration of their danger to the community. In spite of these facts, there are many hospitals which practice routine Wassermann tests for one or another reason, but apparently without any purpose directed to the control or prevention of the disease, so far as the early cases are concerned. If every case of syphilis with a chancre, or with an early eruption, were hospitalized and treated under compulsion, the disease could be controlled far better than through any system of legislation regulating the report of cases or determining the eligibility of persons for marriage. All general hospitals should have special provisions for the indoor care of incipient or acute syphilis, and all men who treat syphilis in public practice should encourage and enforce indoor care of such patients with the object of getting these subjects under proper control, and thereby minimize the spread of the disease. Legislation should be directed at enforcing the hospitalization of cases of acute syphilis coming under public charge. Educational movement should encourage the public to recognize syphilis as a communicable disease and amenable to isolation just as are scarlet fever, measles and other contagious diseases.

DR. HUGH T. PATRICK, Chicago: I agree that the secret in treating syphilis of the central nervous system depends on early, intensive and individual treatment. The question is, What treatment fulfils these requirements? The administration of mercury with potassium iodid will fulfil the necessary requirements in the majority of cases, provided enough mercury is given. What is enough? Enough is to be determined by the results, and not by any given dose. To the vast majority of men affected with syphilis one may give two huge inunctions a day without detrimental effect. It takes as much as that to constitute adequate treatment of syphilis in man. When mercury is given in these doses the mouth must be attended to carefully, which does not mean merely the use of any of the known mouth washes, but it means scrubbing the teeth and the gums thoroughly, three times a day, after the intelligent labors of a dentist have preceded. In the majority of cases of syphilis of the nervous system, tabes and paresis, subsequent administration of mercury or salvarsan is a matter of indifference and convenience. In some cases experience shows that mercury accomplishes more than salvarsan, and vice versa. Again, experience shows that some cases do best by alternating one and then the other. As regards tabes dorsalis and paresis, a number of cases are incorrectly diagnosed as cerebrospinal syphilis or paresis. The Lange gold test is not infallible for paresis.

DR. ABNER POST, Boston: Much trouble comes from the classification of syphilis as a venereal disease. When we think of the accidental inoculations, of conjugal syphilis, of hereditary syphilis, and syphilis communicated in some other way, it is unfair to classify all syphilitics under the term "venereal." We ought to consider syphilis as a communicable disease and have it so recognized in hospitals and in reports of vital statistics.

DR. WILLIAM G. SPILLER, Philadelphia: I am not a strong advocate of the intraspinal treatment of syphilis because I have had brilliant results in a number of cases by other methods. It is possible to get brilliant results in cases of nervous syphilis provided the treatment outlined by Dr. Fordyce is begun in the early stage of the disease. It is impossible, however, to get satisfactory results when destruction of nerve cells and nerve fibers has occurred. The most that can be hoped for in such cases is an arrest of the pathologic process. As to laboratory findings, these are sometimes positive in the cerebrospinal fluid when there are no symptoms of syphilis of the nervous system. These cases should be regarded as suspicious. There are many cases which are probably late manifestations of syphilis in which the findings are negative.

Dr. George Walker, Baltimore: In a recent examination of 1,080 patients, regardless of the diseases for which they sought treatment, 10.8 gave a positive Wassermann reaction. In an examination of 327 prostitutes, 67 per cent. gave a positive Wassermann reaction. Of 480 inmates of an institution for the feebleminded, boys and girls, representing state charges, less than 3 per cent. showed positive Wassermann reactions. In an examination of sixty of the lowest grade of imbeciles there was only one that showed a positive Wassermann reaction.

IMMUNIZATION AND ITS PRACTICAL APPLICATIONS

The Underlying Problems of Immunization

Dr. Theobald Smith, Princeton: The underlying principles of immunization are twofold: 1. To prevent or to check disease by applying the methods copied from nature and improving on them in the interest of man, if possible. 2. To discover the modus operandi of resistance to disease, the sequence of events which is associated with recovery on the one hand, and with complete resistance on the other. The object of immunization is to raise the resistance of the body. The remarkable effectiveness of smallpox vaccination has left the impression that immunization toward any disease always means complete protection from that disease. We miss here the quantitative concept which is involved in all life processes. We must accept the fact that no kind of vaccination is invariably and completely protective. We may, however, hope to convert a fatal into a nonfatal attack, a mild attack into one so mild as to remain unrecognized or into complete protection. As long as the susceptibility of individuals varies toward the same infecting agent, we cannot expect the same treatment to bring all to the same level of resistance. Nor is it possible with the same treatment to protect equally well against agents of high and low virulence. To neglect the quantitative side of immunization is to bring the process into discredit because our claims cannot be justified. One of the problems bearing on this phase of the subject is a better study of spontaneous mild disease as a result of exposure in the vaccinated individual and of attacks which may not be recognized by older clinical methods, and which even the patients themselves may overlook. Our present conception of acquired immunity assumes that, after every exposure, there is some, however slight, multiplication of the virus necessary to wake up the immunizing mechanism.

The essential factor to be kept in mind is to raise such resistance with the least injury to the subject. The direction which immunization is to take depends on the etiologic factors involved. There are primary and secondary infectious agents in most diseases. It is generally conceded that if we protect against the primary agent, the others are thereby kept suppressed. The assumption underlying this view is that the secondary agents play no part in giving the primary agent an opportunity to infect, but that the reverse is true. This, however, has not been proved. When it comes to an actual outbreak of such a possible change of diseases, the situation is changed; the main or primary disease will run its course satisfactorily if the complications can be kept away. The question, then, at issue becomes a choice of vaccine toward possible secondary invaders. The general rule that a single attack of a disease protects for life is subject to many limitations. All acquired immunity is a perishable commodity. This question is complicated by several factors, among which are the following: (*a*) The human body becomes more resistant to infection with age. (*b*) There is a possibility of reinfection without clinical signs which will maintain and strengthen any immunity obtained in infancy and childhood.

There is a clearly marked distinction between groups of micro-organisms as to the capacity of the host to be immunized experimentally. With some the attempt is much more readily successful than with others. Those bacteria which act only through their toxins are most easily kept in check by immunization. Bacteria producing diseases of longer duration appear difficult to suppress in proportion to the chronicity of the affection. To these general rules there are exceptions. Endemic disease leads to relatively heightened resistance. Since most of the diseases in question are due to parasites which survive and may persist in the blood during a lifetime, which, in other words, are able to subsist in an immune host, the most rational explanation is that based on the transmission of immune bodies to the offspring.

Among the established facts in immunology is the greater efficacy of living virus over any other; the practical application of this fact, however, encounters many obstacles. There are the degree of permanency of the attenuation, and besides the attenuation of homologous viruses, the finding of naturally attenuated strains. The preconception that strains of low virulence cannot immunize toward highly virulent strains should not stand in the way of actual trials. Next to living virus, the bodies of bacteria killed by heat seem to have the best chance of producing immunity. The success or failure of this method will depend theoretically on what is the important antigen. If the aggressive activity or virulence of micro-organisms is rapidly lost after isolation from the tissues, the effectiveness of cultures killed by heat, or otherwise, will naturally depend on the total age of the cultures used, provided the factor of virulence is not completely destroyed when the bacteria are killed. The evident success of this method in preventing an attack of typhoid fever is encouraging for this method of vaccination. The relative efficiency of sensitized vaccines probably depends on a quantitative relationship between the antiserum and the bacilli. For diphtheria toxin and antitoxin this can be controlled definitely. It is difficult to see just how a similar accurate titration of immune serum and bacteria can be made in terms of any assignable units at present. The only way open is to inject series of mixtures of variously sensitized bacteria and await results. The explanation for the very effective immunizing power of sensitized toxins depends on the greater penetrating power of such mixtures. The toxin appears to travel farther in combination with the antitoxin than when free. Perhaps the last word in immunizing methods is the use, not of living or dead virus, but of distinctive parts thereof. Theoretically, the attempt to find the chief antigen of a micro-organism and exclude all others as either unimportant or harmful is just as justifiable as the attempt to immunize the body toward the chief or primary infection, letting the secondary infection alone. Of a series of antigens there may be one which represents the primary and, therefore, the most important aggressive or protective agency of the virus and which, if introduced in abundance, might produce that degree of resistance which later will interfere with the beginning of the infective process.

The recent developments in immunologic research indicate that medical science is moving away from the doctrine that the toxins or poisons of bacteria are the chief substances against which immunization is to be directed. That they are responsible for most of the injury inflicted must be granted, but the injury may be a side issue not in line with the main events. The object of immunization is to suppress the invader; the problem underlying is to find the precise aggressive weapons which permit the invader to multiply. The capacity of micro-organisms to enter and multiply in the tissues of the host may or may not be due to the direct action of the toxins. If not, it would be useless to immunize them. However, when we come to treat disease in actual progress, the neutralization of toxins may be a very important step.

Serum Therapy

Dr. William H. Park, New York: The advisability of using serums in any particular disease is influenced by a number of considerations. The primary one is whether a serum is available which contains antibodies of suitable kind and amount to neutralize the toxins or aid the body cells or ferments in destroying the micro-organisms; others, whether the infection can be identified from clinical signs alone, or only after additional laboratory examinations, and whether the serums can be brought into contact with the toxin or organisms at the essential points in the necessary concentration and within the required time. Dr. Rufus I. Cole believes that 75 per cent. of all lobar pneumonia cases are caused by pneumococci of three strains which he has called Types 1, 2, and 3, and that the remaining 25 per cent. are caused by a multitude of strains so numerous that in a moderate number of cases no repetition of the same type is likely to be encountered. About 30 per cent. of the cases of

pneumonia, and about one third of the total deaths are caused by infections with Type 1. The results of serum injection seem favorable in Type 1, doubtful in Type 2, and absolutely negative in Types 3 and 4. The mortality up to the present time has been much less in the treated than in the untreated cases. Serum sickness occurred in about 50 per cent. of the cases, and while very annoying was not dangerous. The serum should be standardized so that 0.2 c.c. of a recent serum will protect 100,000 fatal doses of a very virulent type of pneumococcus, and no serum should be put out that contains less than half that strength. Cole advises 80 c.c. of serum diluted with 80 c.c. of salt solution injected intravenously, and repeated about every twelve hours until permanent improvement is noted. Usually he gives from three to five doses. He recommends that the serum be given only after the bacteriologic test has shown the type, while I believe that in a severe case a first dose of Type 1 serum should be given as soon as possible and the later injections only after a bacteriologic report.

The treatment should be considered from two points, one the good of the patient, the other the advance of knowledge. The severe cases that receive an injection of Type 1 serum are considered only from the first standpoint. With the antistreptococcic serums the same reasoning applies as with the pneumococcic serums, and the same dosage and method of administration. If it is suspected that the infection is with the hemolytic type, we can rightly give this type of serum with the hope of some good results. If we suspect the *Streptococcus viridans* type, a polyvalent serum of this type might be given with slightly less prospect of help. Before giving further injections the organisms should be identified.

In epidemic meningitis the spinal fluid in every case should be examined microscopically, for only in this way can a correct diagnosis be made. Here, too, the strains differ; they have group relationships, and intravenous injection of suitably selected strains causes the horse to produce a serum capable of almost all strains. The reports from England of failure to get good results under the serum treatment of meningitis may be explained by the great demand for the serum which leads to the attempt to replenish the stock of serum and which in turn leads to a too frequent bleeding of the horses, resulting in a serum which is found later to be poor in antibody content.

I should like to refer to the favorable results obtained in the treatment of early toxic cases of scarlet fever with convalescent serum, or whole convalescent blood, by saying that from 100 to 300 c.c. of fresh whole blood injected intramuscularly can also be used in acute and chronic exhausting diseases in which the nutritive and bactericidal value of homologous protein is distinctly indicated.

As to the Schick reaction and dosage of antitoxin in diphtheria, a single large dose of antitoxin has been shown to be more effective than a larger amount of antitoxin administered in several successive doses. Were it not for the disadvantages inherent in the intravenous method, it would be the method of choice. In patients who have been sick for from twenty-four to seventy-two hours and show a great extent of disease and symptoms of toxic absorption, from 3,000 to 10,000 units of antitoxin intravenously is imperative. On the other hand, the mild or moderate cases may be treated by a subcutaneous or, better intramuscular injection.

As to the methods of administering tetanus antitoxin, experiments demonstrate conclusively the superiority of the intraspinal method.

DR. LUDVIG HEKTOEN, Chicago, delivered an address on "Vaccine Therapy," which was published in THE JOURNAL, May 20, 1916, p. 1591.

Discussion on Immunization and Its Practical Applications

DR. FRANK BILLINGS, Chicago: In chronic affections, both local and acute, more particularly the infectious arthritides, and in cases of furunculosis, alveolar abscesses, sinusitis, pyelitis, cystitis, etc., we have attempted to carry out treatment by autogenous vaccines. We tried to make our autogenous vaccines by the injection into animals of strains obtained from the tissues of man. Furthermore, we immunized the horse with polyvalent strains of the so-called *Streptococcus viridans*. We had that serum standardized. We used serum to sensitize vaccines of the type we are using. We used serum in connection with the vaccines to attempt to arouse the defenses of the individual. We have kept records of all of that work. We have treated over 500 cases of chronic infectious arthritis, a number of cases of infectious endocarditis with *Streptococcus viridans*, a number of patients suffering from pyelitis, colon bacillus infection, and other infections. While this work was going on, especially with the arthritides, I have attempted to see what could be done with the same class of patients without vaccines.

Before we knew much of bacteriology or vaccine or serum treatment, we recognized that certain individuals were more susceptible to disease than others because of exposure to cold, to extreme fatigue, to any kind of mental or physical strain, to poor general nutrition, and to many other causes. Age in such cases plays an important part, and especially as to the resistance of the tissues and the possibility of tissue regeneration when once infected. Alongside with vaccination we have attempted to find out conditions of that kind in patients and have sought by hygienic and other measures of treatment to remove them, and I find, so far as I can determine, that patients who had no vaccines with these general processes had their defenses aroused quite as quickly and fully as those who received vaccines. If one did not pay attention to general hygiene and to the building up of these patients, the vaccines of themselves did not bring forth a response. The use of autogenous vaccines in chronic processes, both local and general, is so limited that their employment has not justified the expenditure of labor and the price necessary to carry on the work. That is a general statement, subject to modification that in certain instances, under certain conditions, and in certain individuals the use of vaccines seems to be of benefit; but take them as a class in general disease, I have yet to see the benefit of them.

Vaccination, as practiced all over the country by the use of commercial vaccines, is a disgrace to the medical profession. The fault is not to be laid at the doors of the people who manufacture these things; they would not continue to manufacture them if the doctors did not use them, and that is not the worst of it. Not only do they manufacture them and put them up in polyvalent forms and advise them to be used in this and that way, but these firms make the diagnoses for the doctors and tell them when and how to use them. The great trouble is that the average doctor is unthinking and unscientific enough to use a method of treatment which costs him but little thought, and he is so thoughtless that he disregards the results on his patients.

DR. RUFUS I. COLE, New York: So far as producing immunity of any kind in an acute infection is concerned, we must keep in mind that the only evidence we have justifying vaccine treatment is the results which have been obtained by the experiments of Dr. Gay and Dr. Jobling. From a study of the literature and from many experiments, it seems to me that there is very little justification for the use of vaccination in acute lobar pneumonia. I have tried to produce active immunity in animals within a few days by various methods, but we cannot bring about that grade of immunity which one would expect to do any good within six or seven days. In regard to serum therapy, here again we must be sure we have the same experimental justification for going ahead with any method of serum therapy. The facts on which we can hope to justify any method of treatment are simply two: 1. We cannot render animals immune or render them resistant to infection with the pneumococcus by treatment with living or dead organisms. 2. By transferring the serum of the animals to the normal animal we can render the animal resistant, and, finally, we can, by transferring this blood to the animal which has already been infected, cure that animal, provided the dose of infection of the organisms is not too great, or that we have not delayed too long after infection. In pneumonia I feel convinced that the use of serum in Type 1 infection, referred to by Dr. Park, is efficacious. That statement, however, is based on a comparatively small experience. When one considers the great frequency of pneumonia, with 6,000 deaths in New York City annually,

2,000 of that number being Type 1 infection, and Type 1 infection causing more deaths than typhoid fever, scarlet fever and all forms of meningitis combined, it seems quite important that serum therapy be given independent consideration.

Dr. Thomas W. Hastings, New York: For years specific therapy, particularly in the form of vaccine therapy, has been abused, mainly because care has not been taken to determine the specific factor involved. This is just as important in using serums as in employing vaccines. Discredit has been brought on the use of them because frequently specific diagnoses of the factors concerned are not made before serum is employed. The day has come when the rank and file of physicians in this country should recognize the fact that it takes specialists to do this work, if it is done at all, and that the commercial use of polyvalent vaccines, without specific diagnoses, should be discontinued.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

May, CLI, No. 5, pp. 625-780

1 Some Phases of Nephritis Problem (A Review). H. A. Christian, Boston.
2 *Surgical Significance and Operative Treatment of Enlarged and Varicose Veins of Spinal Cord. C. A. Elsberg, New York.
3 *Rôle of Sympathetic System in Diagnosis of Abdominal Diseases. J. F. Binnie, Kansas City, Mo.
4 *Endothelial Phagocytes in Pleural Exudate Due to Bacillus Typhosus. O. H. P. Pepper, Philadelphia.
5 *Prophylactic Use of Tetanus Antitoxin. H. E. Robertson, Minneapolis.
6 *Localization of Cerebellar Tumors; Pointing Reaction and Caloric Test. E. G. Grey, Boston.
7 *Case of Primary Splenic Hodgkin's Disease. R. R. Mellon, Ann Arbor, Mich.
8 *Results With Cholesterinized Antigens in Nonsyphilitic Serum. C. W. McClure and E. S. Lott, Iowa City, Iowa.
9 Cases of Dilatation Aneurysms of Descending Thoracic Aorta. S. Neuhof, Lebanon, Ala.
10 Direct Blood Transfusion With Kimpton-Brown Tubes; Report of Nine Cases. F. R. Barnes and M. A. Slocum, Philadelphia.
11 *Time Relations of Gastric Pains, With Special Reference to Gastric Adhesions. J. C. Friedman, Chicago.

2. **Operative Treatment of Varicose Veins of Spinal Cord.**—The posterior spinal veins are sometimes considerably enlarged below the level of the spinal compression. On account of interference by the pressure of an extramedullary neoplasm with the return venous flow, the veins become much enlarged and engorged with blood for a considerable distance below the level of the tumor. When the cord of such a patient has been exposed, Elsberg says, one or both veins appear very large and very prominent; they are often more tortuous than normal. In intradural inflammatory processes—meningitis and meningomyelitis—the cord has a pink color due to the fine network of distended arteries and veins in the hyperemic area. The appearance is not the same as that below a spinal compression in which distended veins stand out prominently on the creamy-white background of the cord. Therefore, Elsberg says, it is important for the operator to recognize and to understand the significance of these distended posterior spinal veins and to differentiate a venous engorgement due to pressure from an ordinary inflammatory hyperemia of the cord. More or less localized enlargement or varicosity of one or both posterior spinal veins is a condition which is not very rare; it may be the cause of local spinal symptoms, and complete relief from the symptoms may follow an operative interference. Among 130 laminectomies for spinal disease Elsberg has six times found one or several enlarged spinal veins on the posterior surface of the cord. All of the patients had the signs and symptoms of a level lesion, and the greatest or only enlargement of the vein was found at the part of the cord which corresponded with the symptoms. Two of the patients suffered from severe root pains and large veins were found to accompany the affected spinal roots.

Elsberg believes that it is fair to conclude that there was some connection between the enlargement of the vein and the cord symptoms. The enlarged veins were excised. Of the six patients, two had a spastic paraplegia with sensory level symptoms of long standing, and their condition was unchanged after the operation. One patient with a tuberculoma of the cord improved very much, but the improvement was due to the removal of the growth. A patient who had suffered from severe root pains confined to the distribution of the left eighth dorsal root, and in whom a much enlarged vein ran with the root, was entirely relieved by the laminectomy and excision of the large vein. Two patients were suspected of a spinal tumor, but nothing excepting the localized venous enlargement was found at the operation. Both of the patients had well-marked sensory and motor signs, and marked improvement followed the surgical interference. One of the patients recovered entirely.

3. **Rôle of Sympathetic System in Abdominal Diseases.**—The incidence and distribution of pain produced by disease affecting the abdominal organs supplied by the sympathetic nervous system is discussed thoroughly by Binnie. "Reflex pain" and "referred pain" are analyzed from the anatomic basis. He says, for instance, that the complexity of the nerve connections of the viscera, the perfection attained in the fulfilment of their vegetative or automatic functions, and the rarity of the higher centers being given cognizance of what is going on in the digestive tract, apart from a feeling of well being or satisfaction, excuse if they do not explain the confusion in the differential diagnosis of such distinct anatomic entities as appendicitis, pancreatitis, cholecystitis, gastric and duodenal ulcers. "Referred pains" may be simulated closely by other very important pain. Inflammation extending from the organ primarily involved may of course come into a region supplied by spinal nerves and thus pain result, such as the lumbar pain experienced in cases of retrocecal appendicitis, or the inflammation may spread to another organ adherent to that primarily involved, and thus a secondary "referred pain" may be noted. An example of this latter condition is in cases in which an inflamed appendix becomes adherent to the prostate and gives rise to pain at the point of the penis. In appendicitis pain may be experienced on the left side of the abdomen through direct extension of peritonitis or possibly, in the absence of such extension, by allochiria, because (Head and Howell), when from any cause one or other of the cutaneous senses is depressed in a given area stimulation in this region may give sensations which are referred to a symmetrical area on the opposite side of the body. Impulses passing up from the ureter to the aortic plexuses may produce a disturbance there, sufficient to cause the transmission of motor impulses through the hypogastric plexus to the rectal sphincters and thus set up a tonic contraction. Such tonic contraction is present in the cases in which renal colic is mistaken for obstruction.

Binnie points out that originally the gastro-intestinal canal was a straight tube developed in the dorsal region and pushed into the primitive body cavity in such a fashion that it became enveloped with peritoneum but retained its connection with the dorsal structures by means of blood vessels and of nerves which lay between the layers of the primitive mesentery. As development proceeded the various organs assumed the positions in which they are found in the normal individual. The viscera ultimately normally take up positions which may be remote from the middle line, yet their telephone supply remains the same except for the necessary elongation of the wires. Binnie suggests that this may explain why the early pain of most visceral lesions is generally median.

4. **Pleural Exudate Caused by Typhoid Bacillus.**—Pepper cites the case of a man who had been ill with fever and chills for three weeks. He complained of no localizing symptoms, and on questioning admitted the presence of a slight pain in the chest for a day or two. The temperature and pulse were elevated. Physical examination revealed nothing abnormal other than the signs of a small effusion at the base of the right lung. On aspiration a few cubic centimeters of hemor-

rhagic serous fluid were withdrawn, and from the cytology of this a diagnosis of pleurisy due to the typhoid bacillus was ventured. This diagnosis was promptly verified by finding that both the blood serum and the effusion gave a positive agglutination test with typhoid bacilli and later by obtaining the *B. typhosus* in pure culture from both the blood and the effusion.

5. **Prophylactic Use of Tetanus Antitoxin.**—It is held by Robertson that in the large majority of cases the subcutaneous injection of twenty units of tetanus antitoxin immediately after the injury will prevent with certainty the occurrence of tetanus. The delay of a few hours in making the injection may mean the loss of life. Local applications of fluid antitoxin on the wound are efficacious but unnecessarily wasteful and not always practical. In cases in which injections cannot readily be made, especially in time of war, the immediate application to the wound of dried antitoxin tampons moistened by clean fluid may be used as a temporary substitute until fluid antitoxin can be injected, but powdered antitoxin on the wound is not, as a rule, dependable. Its one useful field is perhaps the prevention of tetanus neonatorum. The protection afforded by antitoxin lasts from two to three weeks. Hence in cases of protracted suppuration or in cases in which for other reasons secondary surgical interference is contemplated, either second injections of antitoxin should be made or dried antitoxin tampons freshly moistened should be placed on the wound.

6. **Localization of Cerebellar Tumors.**—Grey's report has to do with the results obtained from using these tests in thirty-one patients with cerebellar or extracerebellar tumor. The caloric test has proved to be an important means of differentiating labyrinthine from intracranial disease. Together with the pointing reaction, this test has been found of value, furthermore, in localizing circumscribed lesions in the cerebellum. In most of the patients having cerebellopontine new growths and in certain of those with tumors of one or the other hemisphere, the reactions were sufficiently characteristic to be of supplementary value in localizing the disease. In other patients with intracerebellar or extracerebellar tumor, on the contrary, the results were often ambiguous and afforded no assistance in establishing a diagnosis. In fact, in numerous instances the conclusions drawn from these results were at variance with the other physical findings, and, had any great reliance been placed in them, would have led to erroneous results. Grey suggests that there are probably a number of factors responsible for the occurrence of atypical reactions in patients with certified cerebellar tumors. As the more important he mentions first, the great increase in intracranial pressure due to an internal hydrocephalus which ultimately accompanies new growths in the posterior fossa, and second, the diffuse nature of many of the tumors common to the cerebellum.

7. **Primary Splenic Hodgkin's Disease.**—Mellon reports what he believes is the first case of the kind on record. The entire clinical history covered a period of not over two years, the lymphatic glandular involvement of chest, abdomen and inguinal regions, all showed changes decidedly younger than those in the spleen.

8. **Cholesterinized Antigens in Nonsyphilitic Serum.**—Nonspecific reactions were obtained by McClure and Lott with antigens representing additions of 0.0125, 0.0248, 0.0496, 0.0502 and 0.0996 gm. of cholesterin to 100 c.c. of the alcoholic extract of syphilitic livers; also, with an addition of 0.101 gm. of cholesterin to 100 c.c. of the alcoholic extract of guinea-pig hearts. The conclusion is drawn that cholesterin additions in the amounts above employed render the alcoholic extract more sensitive but somewhat less specific, and therefore of questionable value in the diagnosis of syphilis.

11. **Time Relations of Gastric Pains.**—Gastric discomfort of the intragastric and perigastric regions is divided by Friedman into continuous and intermittent varieties. The continuous pains are most frequently due to carcinosis, to marked pyloric obstruction, and to penetrating ulcers, with peritoneal involvement. The intermittent pains may be divided into immediate, early and late. The immediate are found frequently in ptosis, neurosis, obstruction of the cardia, besides other conditions, not considered here, as achylia gastrica, etc. The early pains including those occurring fifteen to sixty minutes after eating, are most often due to adhesions in any part of the stomach, including ventral hernias and pericholecystitis. These are to be thought of particularly in those cases in which the changes in secretion and motility are too slight to account for the distress complained of. Late pains include those occurring one to three hours after eating, and indicate an increase in intragastric pressure or pylorospasm, of which the most frequent cause is hyperacidity. It is occasionally due to slight pyloric obstruction or pyloric adhesions or reflex causes.

American Journal of Roentgenology, New York

April, III, No. 4, pp. 191-242

12 *Roentgen Deep Therapy in Malignant Tumors. A. F. Holding, New York.
13 Roentgen Diagnosis of Obscure Lesions of Gastro-Intestinal Tract. W. H. Stewart, New York.
14 Comparative Value of Roentgen Ray and Radium in Therapeutics. W. S. Newcomet, Philadelphia.
15 *Roentgen Studies of Effect of Moderate Doses of Some of Opium Derivatives on Gastro-Intestinal Tract of Man. H. K. Pancoast and A. H. Hopkins, Philadelphia.
16 Use of "Polygram" in Gastroduodenal Roentgenography. I. Gerber, Providence.

12. Abstracted in THE JOURNAL, Nov. 6, 1915, p. 1669.

15. Abstracted in THE JOURNAL, Oct. 30, 1915, p. 1581.

Archives of Ophthalmology, New Rochelle, N. Y.

May, XLV, No. 3, pp. 205-305

17 Declinations of Vertical Meridians of Retina. G. T. Stevens, New York.
18 Frozen Carbon-Dioxid in Treatment of Trachoma, Vernal Catarrh and Pterygium. A. E. Prince, Springfield, Ill.
19 Localization of Streptococci in Eye. E. V. L. Brown, E. E. Irons and W. H. Nadler, Chicago.
20 Anilin Injuries of Eye; Report of Case With Deep Ulceration of Lower Lid. R. J. Curdy, Kansas City, Mo.
21 Optic Neuritis After Influenza, With Changes in Spinal Fluid. A. Knapp, New York.
22 Two Cases of Metastatic Ophthalmia Consecutive to Pneumonia. M. Cohen, New York.
23 Correct Use of Giant Magnet in Operations on Eye. O. Haab, Zürich.
24 Examination of Color Sense With Pigment Colors. R. Helmbold, Danzig.
25 Description of Exophthalmometer. W. Lohmann, Münich.

Archives of Pediatrics, New York

April, XXXIII, No. 4, pp. 241-320

26 *Studies in Spinal Fluid. (I) Alkalinity of Spinal Fluid; (II) Report of Cases. A. Levinson, Chicago.
27 *Some Important Factors Affecting Incidence of Measles and Fatality Therefrom. J. G. Wilson, U. S. P. H. S.
28 Value of Wassermann Reaction in Mental Deficiency in Children. Study of Seventy-Eight Cases. A. Gordon, Philadelphia.
29 *Recovery of Colon Bacillus From Spinal Fluid of Five Months' Old Infant. M. Michael, Chicago.
30 Short History of Infant Feeding. H. R. Mixsell, New York.

26. **Studies in Alkalinity of Spinal Fluid.**—Levinson believes that methyl red is the most sensitive and most suitable indicator for determining the alkalinity of the spinal fluid. It is one of very few indicators that is sensitive to organic substances. It gives a straw color to water, a strongly yellow color to alkaline and a bright red to acid. The change from neutral to acid or alkaline is very sharp and can be used even for the determination of ammonia. Levinson used 1 drop of a 2 per cent. solution of methyl red in alcohol and adopted sulphuric acid for titration of the spinal fluid and that in one-hundredth normal solution. He describes his method in detail. The result of his study thus far seems to be that the alkalinity of the spinal fluid varies in different diseases. The alkalinity bears a certain relationship to diseases of the meninges. Furthermore, some diseases influence the alkalinity in a characteristic manner. The determination of the chemical reaction of the fluid thus becomes of value in establishing the diagnosis of some forms of meningitis. Fifty cases of spinal fluid were tested for its alkalinity, some of which were nonmeningeal in character, while others were true meningitis. In nonmeningeal cases

the alkalinity varied from 1.5 to 2.6 c.c. Normal alkalinity varying between 2.0 and 2.4. In the meningeal cases the alkalinity was lower. Epidemic meningococcus meningitis shows a lessened alkalinity of the spinal fluid. Of 8 cases tested none reached to 1.5 c.c. the highest being 1.3 c.c., the lowest 0.7. Pneumococcic meningitis also shows a lessened alkalinity from 0.9 to 1.1 c.c., but tuberculous meningitis shows no decrease in alkalinity. One case of influenza meningitis gave a 1.45 c.c. alkalinity. The administration of serum had an increasing effect on the alkalinity of the spinal fluid.

27. **Factors Affecting Incidence of Measles.**—From a study of his own cases and a survey of the literature, Wilson feels that both the incidence and the case mortality rate of measles are subject to extreme variations and that the cause of these variations is not understood. He says that cross infection, especially that of diphtheria, is the most serious event that can occur in the course of measles. Suppurative otitis media, although the most frequent complication of measles, is not of grave prognostic import when properly treated. Bronchopneumonia complicates about 10 per cent. of all measles cases, being but little influenced by weather conditions in the frequency of its occurrence or its fatality. The fatality of measles complicated by bronchopneumonia is 58 per cent., but this fatality varies in an exceedingly erratic manner and without marked relation to the total case fatality of measles. The incidence rate of bronchopneumonia as a complication rather than its case mortality appears to be an index to the severity of any particular outbreak of measles.

29. **Colon Bacillus in Spinal Fluid.**—Michael reports this as a case of colon bacillus meningitis of hematogenous origin.

Arkansas Medical Society Journal, Little Rock

April, XII, No. 11, pp. 269-295

31 First Medical Faculty Elected in Arkansas. L. P. Gibson, Little Rock.
32 Mastoiditis. J. W. Ramsey, Jonesboro.
33 Tonsillectomy With Local Anesthesia. H. H. Rightor, Helena.
34 Importance of Treating Diseases of Accessory Sinuses of Nose. L. H. Lanier, Texarkana.

Boston Medical and Surgical Journal

May 11, CLXXIV, No. 19, pp. 667-702

35 *Methods for Testing Donors for Transfusion of Blood and Consideration of Factors Influencing Agglutination and Hemolysis. G. R. Minot, Boston.
36 Use of Duodenal Tube for Diagnosis and Treatment. (To be concluded.) F. W. White, Boston.
37 *Gastric Ulcer Experimentally Produced by Means of Staphylococcus Organism; Preliminary Note. E. C. Steinharter, Cincinnati.
38 Fallacies of Group Treatment. H. J. Cronin, Cambridge.

35. **Testing Donors for Transfusion of Blood.**—The various tests employed to test blood for its power to agglutinate or hemolyze other blood are described by Minot, including his modification of the Rous and Turner test, which he has found may be performed without the need of accurately diluting the blood by white counters, so that the disturbing factor of clotting is done away with. Minot places 3 to 4 drops of a 1.5 per cent. citrate solution in 0.9 per cent. salt solution in a short (about 2 cm.) test tube, with a relatively large diameter (about 1 cm.); then collect in this tube 9 drops of blood from the recipient and one from the donor, and in another tube similarly collect 9 drops from the patient and one from the recipient. The drops of blood are collected from a prick in the ear, trying to allow the blood to fall directly into the citrate, but it makes no difference even if the blood runs down the side of the glass. The drops need not be of exactly the same size, and the amount of blood does not need to be accurate, but approximate. After the mixtures have been mixed by shaking, and have stood for about fifteen minutes, take out a drop and examine it microscopically for agglutination.

37. **Gastric Ulcer Experimentally Produced by Means of Staphylococcus Organism.**—The organism used by Steinharter was obtained from a case of septicemia in man. At first cultures of it injected intravenously into rabbits were found to produce a septicopyemia, but later, after cultivation in the wall of the living stomach of the rabbit, it showed on intravenous injection an affinity for the intestinal tract, locating most often in the appendix and occasionally in the stomach. Typical peptic ulcers varying from one quarter of an inch to 1 inch in diameter were produced by injecting locally into the stomach wall the staphylococcus organism of certain grades of virulence and a weak acetic acid solution. The injection of the organism alone usually caused the development of a small localized and firmly walled off abscess at the point of injection. Such an abscess, as a rule, was absorbed in the course of four to six days and never showed any involvement of the mucous or peritoneal coats. In some cases no abscess was formed. The introduction of the acid alone into the stomach wall beyond causing more or less edema provoked no gross pathologic change in the tissues. It never caused an ulcer; but it did seem to increase the susceptibility of the area for localization of the staphylococcus injected into the general circulation. The tendency of selective localization in certain organs was found to depend among other things on the virulence of the organism and could be modified by cultivation in functionating tissue. In the light of these results, it seems to Steinharter that it is possible that the staphylococcus is responsible for certain cases of gastric ulcer in human beings. If by some means (through an erosion or trauma, etc.), a hyperacid gastric juice enters the tissues of a limited area of the stomach wall and the staphylococcus of proper virulence (for example from the appendix) finds lodgment there, it does seem quite probable that the necessary conditions used in producing the experimental ulcer would be duplicated. This point is still under study.

Florida Medical Association Journal, Jacksonville

May, II, No. 11, pp. 321-352

39 Plastic Tendon Surgery. R. C. Turck, Jacksonville.
40 Direct Transfusion With Bernheim Tubes. H. M. Ginsberg, Pensacola.
41 Ovarian Cysts. D. Forster, Hawkes Park.
42 Influenza. A. R. Bond, Tampa.
43 Imperforate Anus. E. T. Campbell, Starke.
44 Appendicitis. J. W. Hargis, Pensacola.

Iowa State Medical Society Journal, Des Moines

April, VI, No. 4, pp. 147-198

45 Some Later Adaptations of Gastro-Intestinal Surgery. C. A. L. Reed, Cincinnati.
46 Surgical Treatment of Old Gonorrheal Infection in Women. S. A. Spilman, Ottumwa.
47 Two Cases of Madelung's Disease. E. C. McClure, Bussey.
48 Case of Intra-Ocular Sarcoma. W. J. Bussey and J. W. Shuman, Sioux City.
49 Effects of Workmen's Compensation Law on Profession. D. S. Fairchild, Clinton.
50 Infection, Cause of Local and General Disease. C. H. Mayo, Rochester, Minn.
51 Medical Treatment of Gastric Ulcer. E. D. Tompkins, Clarion.
52 Series of Brain Cases. A. M. Pond, Dubuque.

Journal of Parasitology, Urbana, Ill.

March, II, No. 3, pp. 99-148

53 Seasonal Distribution of Some Acanthocephala From Fresh Water Hosts. H. J. Van Cleave, Urbana.
54 Intermediate Hosts of Lung Distome, P. Westermani Kerbert. S. Yoshida.
55 *Gongylonema in Rôle of Human Parasite. H. B. Ward, Urbana.
56 Are Sarcosporidia Aberrant Forms of Cnidosporidia of Invertebrates? B. Galli-Valerio.
57 Three New Gregarines From Marine Crustacea. M. E. Watson, Long Island, N. Y.
58 Pajaroello Tick (Ornithodorus Coriaceus Koch). W. B. Herms, San Francisco.
59 Etiology of Verruga as Deduced From Study of Asexual Stages of Bartonella. C. H. T. Townsend, Washington, D. C.
60 New Infusorian Parasite in Sand Fleas. M. E. Watson, Long Island, N. Y.

55. **Gongylonema Human Parasite.**—A specimen of *Gongylonema*, probably *G. pulchrum*, according to Ward, has been recovered from man. This species is normally a parasite of the pig. Infection of the human host in Ward's opinion was brought about probably by the ingestion of larvae in the infective stage which had developed in some insect. Very likely the croton bug, known by experiment to be able to serve as intermediate host for this species, was the source of the infection which might readily occur by accident. The presence of the parasite was accompanied by clinical symp-

toms indicating marked digestive and nervous disturbances, associated with anemia. These symptoms disappeared with the removal of the worm. The parasite displayed a tendency to wander through the submucosal connective tissue from the lips to the throat.

Journal-Lancet, Minneapolis

May 1, XXXVI, No. 9, pp. 247-278

61 Clinical Observations and Deductions of Some Obscure Infections. A. E. J. Sohmer, Mankato.
62 Recent Advances in Therapy of Syphilis. J. Butler, Minneapolis.
63 Some Common Errors in Infant Feeding. G. E. Zimmerman, Sioux Falls, S. D.
64 Open-Air School Movement. P. L. Benjamin, Minneapolis.

Kansas Medical Society Journal, Topeka

April, XVI, No. 4, pp. 97-130

65 Future Prospects of Medical Education in Kansas. E. T. Hackney.
66 Medical Teaching and Its Future. F. Strong, Rosedale.
67 Plans for Future Development of Buildings and Equipment of School of Medicine, University of Kansas. M. T. Sudler, Rosedale.
68 Small College and Medical School. J. Sundwall, Rosedale.
69 Work at University Medical School and Hospital at Rosedale. R. H. Major, Rosedale.
70 What Is Medical Education? S. A. Matthews, Rosedale.
71 Relations of Medical School to Profession of State. M. T. Sudler, Rosedale.
72 Premedical Entrance Requirements. F. B. Dains, Rosedale.
73 Summer School for Physicians and Health Officers. S. J. Crumbine, Rosedale.

Medical Record, New York

May 6, LXXXIX, No. 19, pp. 807-852

74 *Treatment of Pyorrhea Alveolaris and Its Secondary Systemic Infections by Deep Muscular Injections of Mercury. B. L. Wright, U. S. Navy.
75 Nurse in Peace and in War. J. L. Corning, New York.
76 References to Anatomy in Rabelais' Works. D. W. Montgomery, San Francisco.
77 Dementia Praecox Studies. B. Holmes and J. Retinger, Chicago.
78 Causation and Treatment of Pellagra. H. E. Bond, Kingston, Jamaica.
79 Climate in Treatment of Pulmonary Tuberculosis. W. S. Mills, New York.
80 Urinary Test for Syphilis and Its Comparison With Wassermann Reaction. C. D. Gray, Portland, Me.
81 Intravenous Administration of Mercury in Syphilis. T. Shaw, San Antonio, Tex.
82 Report of Fatal Case of Angina Pectoris. J. J. Gingles, Seattle.

May 13, No. 20, pp. 853-894

83 Chronic Trigonitis. H. W. E. Walther, New Orleans.
84 Rôle of Wish in Manifestations of Epileptic Type of Nervous Constitution. R. G. MacRobert, New York.
85 What Life Insurance Companies Can Do to Assist in Control of Cancer. H. W. Cook, Minneapolis.
86 Radium and Symptomatic Blood Pressure. D. C. Moriarta, Saratoga Springs.
87 Dividing Line Between Medical Charity and Medical Business. E. A. Codman, Boston.
88 Practicability of Ratings in Appointment and Promotion of Members of Visiting Staff. R. L. Dickinson, Brooklyn.
89 What Is Meant by Hospital Efficiency and Some of Factors Which Are Often Responsible for Lack of Efficiency. W. H. Smith, Baltimore.
90 Etiology of Recent Epidemic of Pseudo-Influenza. W. W. Williams and W. Burdick, Denver.

74. **Pyorrhea Alveolaris Treated by Muscular Injections of Mercury.**—Wright is convinced that mercury properly administered is a cure for the various infections produced by the vegetable parasites, among which pyorrhea, as a primary focus of infection, is of the utmost importance.

New Jersey Medical Society Journal, Orange

May, XIII, No. 5, pp. 209-258

91 Diabetes. W. W. Beveridge, Asbury Park.
92 Starvation Treatment in Diabetes. F. J. McLoughlin, Jersey City.
93 Epidermolysis Bullosa Hereditaria; Report of Case. E. D. Newman, Newark.
94 Physician's Idea of Preparedness. P. A. Potter, East Orange.
95 Case of Gastric Hemorrhage With Transfusion and Recovery. E. A. Ill, Newark.
96 Diaphragmatic Hernia. E. Field, Red Bank.

New Orleans Medical and Surgical Journal

May, LXVIII, No. 11, pp. 693-764

97 Early History of Malaria. C. Wesselhoeft, Boston.
98 Discovery of Cinchona Bark. C. Wesselhoeft, Boston.
99 Introduction and Early Use of Cinchona Bark. C. Wesselhoeft, Boston.
100 Arsenobenzol. J. P. Lobenhoffer, New Orleans.
101 General Status of Immunity From Laboratory and Clinical Standpoint. A. M. Rovin, Detroit.
102 Pituitary Extract. H. R. Cogburn, Bayou La Batre, Ala.
103 Two Cases of Bone Grafts. J. T. Nix, Jr., New Orleans.

Oklahoma State Medical Association Journal, Muskogee

May, IX, No. 5, pp. 107-135

104 Vesical Calculus. W. E. Dicken, Oklahoma City.
105 Intestinal Obstruction. F. J. Wilkiemeyer, Muskogee.
106 Pneumonia in Country. J. C. Watkins, Checotah.
107 Vesiculitis and Belfield Vasotomy and Vasostomy. B. W. Randel, Muskogee.
108 Treatment of Burns With Bicarbonate of Soda. C. von Wedel, Oklahoma City.
109 Hydrotherapeutics in General Practice. C. W. Jamison, Alva.
110 Prostatectomy; Report of Two Cases. F. L. Watson, McAlester.

Surgery, Gynecology and Obstetrics, Chicago

May, XXII, No. 5, pp. 507-634

111 Report of Unusual Fecal and Genito-Urinary Cases Treated With Bismuth Paste. E. G. Beck, Chicago.
112 Shockless Surgery With Aid of Paravertebral Anesthesia and Scopolamin and Narcophin. B. Kroenig and P. W. Siegel, Freiburg, Germany.
113 *Final Results in Twelve Cases of Colectomy. J. G. Clark, Philadelphia.
114 Surgery of Infants and Small Children. C. G. Buford, Chicago.
115 Pathologic Findings in Retro-Inguinal Hernias. R. Finochietto, Buenos Aires, Argentine.
116 Treatment of Chronic Nontuberculous Empyema. S. Robinson, Rochester, Minn.
117 *Effect of Foreign Substances in Peritoneal Cavity. W. R. Cubbins and J. A. Abt, Chicago.
118 Psychiatry and Gynecology. F. M. Barnes, Jr., St. Louis.
119 Hernias of Urinary Bladder. A. P. Heineck, Chicago.
120 *Value of Sodium Citrate Solution in Prevention of Peritoneal Adhesions. D. C. Straus, Chicago.
121 *Heterogeneous Intramedullary Bone Peg; Its Possibilities and Limitations. G. de Tarnowsky, Chicago.
122 Technic of New Procedure for Subtotal Abdominal Hysterectomy in Uterine Fibroma or Inflammation of Adnexa. C. Carvallo, Lima, Peru.
123 Improved Towel Clip. F. E. Locy, Evanston.
124 *Case of Dystocia Due to Ascites in Fetus With Persistent Cloaca; Report of Case. K. M. Lynch and A. J. Jervey, Charleston, S. C.
125 Internal Sphincter After Prostatectomy. G. S. Gordon, Vancouver, B. C.

113. **Final Results of Colectomy.**—In only six of the twelve cases operated on by Clark was the result entirely satisfactory. In all cases there has been great improvement in the constipation for a time, to be followed at variable intervals in four by a gradual recurrence of the constipation. In some cases this has not been so severe as formerly, whereas in others it is quite as intense. Roentgen ray examinations in three cases showed in two decided dilatation of the ileum to a size closely resembling that of the colon. In none of these cases has there been diarrhea of long standing, and none that was not controlled by simple medicinal measures. In none of the cases has there been undue thirst. In six cases there has been marked improvement in nutrition. In the remainder there was no visible effects so far as physical improvement is concerned. Clark feels that total removal of the colon is justifiable only in severe cases of obstructive constipation and that a less radical procedure must be employed. He inclines to the limitation of the colectomy to the ascending and the middle of the transverse colon, with a lateral anastomosis of the ileum into the transverse colon. In this way the omentum is preserved, and there is far less traumatism to the mesentery, with its very important sympathetic nervous system. The ileum will not uniformly assume the vicarious function of the colon, and the backward pressure from the colon through the anastomotic opening, when it is low down, in a definite proportion of cases causes dilatation and permanent impairment of the ileum.

117. **Effect of Foreign Substances in Peritoneal Cavity.**—Cubbins and Abt claim that iodin is an intense irritant to the peritoneum and favors rather than inhibits bacterial action. It will produce firm fibrous adhesions, either with or without any manipulation of the peritoneum. Nor can they see the value of the use of ether in the peritoneal cavity, and it is their opinion that individuals in whom it is used will recover

in spite of it and not because of it. Petrolatum they found is an intense irritant to the normal peritoneum of a dog, and is absorbed very slowly, if at all. They have had two cases of petrolatum in the peritoneal cavity of humans, in which it was necessary to open the belly and allow the petrolatum to escape practically in the same condition as it was when it had been put in three and four months before. The walling off of the petrolatum in the belly of these two humans was just as firm as if it had been around an abscess. Paraffin oil, too, is relatively nonabsorbable, and will not prevent adhesions, although it is far less irritating to the peritoneum than petrolatum. Olive oil has little, if any, value in preventing adhesions, although it has little or no irritating effect on the peritoneum.

120. **Sodium Citrate in Prevention of Peritoneal Adhesions.**—Sodium citrate solution Straus found is of no value at all in preventing the reformation of adhesions which have been separated. It is of little value, if of any at all, in preventing the primary formation of adhesions, and may interfere somewhat with wound healing.

121. **Heterogeneous Intramedullary Bone Peg.**—De Tarnowsky reports six intramedullary soup-bone peg cases in which he obtained good results. Any of the long bones of a steer will answer the purpose. For repair of a femur, the splint should be 4 inches long for transverse fractures, 5 or even 6 inches for very spiral or comminuted fractures, and approximately one-half inch in diameter; for the tibia or humerus, 4 inches long and one-third to one-fourth inch in diameter. The splint is denuded of its periosteum, cut to the proper size, and boiled two consecutive days for two hours and one hour just before the operation. At the time of the operation, it has been the author's custom to fit the peg to the medullary canal and not to drill the canal to fit the peg.

124. **Dystocia Due to Ascites in Fetus.**—This was a case of monochorial twins, one a well-developed female, the other, also a female, with failure of development of the pelvic viscera beyond a certain point and a marked edema. Lynch and Jervey believe that the underlying factor in the maldevelopment and the edema was one of poor circulation with impoverished blood by reason of the stronger sister usurping the cream of the nutrition from the common supply or even bringing about a relative stagnation of the circulation in the weaker by reason of its superior power.

Texas State Journal of Medicine, Fort Worth

May, XII, No. 1, pp. 1-54

126 Family Physician in Memoriam. F. J. Mayer, Opelousas, La.
127 Modern Country Physician. J. E. Dildy, Lampasas.
128 Plea for Cleanliness in Obstetrics. C. R. Johnson, Gainesville.
129 Pituitary Extract. R. A. Duncan, Graham.
130 Important Points in Bone Transplantation. W. L. Brown and C. P. Brown, El Paso.
131 Regeneration of Long Bones Following Infection. S. P. Cunningham, San Antonio.
132 Relative Value of Tests for Occult Blood. T. C. Terrell, Fort Worth.
133 Splenic Anemia; Report of Case. O. N. Mayo, Belton.
134 Common Errors in Practice of Medicine. K. H. Beall, Fort Worth.
135 After-Treatment in Submucous Resection of Nasal Septum. S. N. Key, Austin.
136 Turbinectomy and Its Results. W. G. Hartt, Marshall.
137 Nasal Affection in Relation to General Medicine. D. L. Bettison, Dallas.
138 Gunshot Injuries of Eyeball. J. O. McReynolds, Dallas.
139 Results That May Be Expected in Operations for Strabismus. R. B. Sellers, Fort Worth.
140 Subconjunctival Injections. R. H. T. Mann, Texarkana.
141 Dionin Subconjunctivally. E. H. Cary, Dallas.
142 Subconjunctival Injections in Plastic Iritis. J. L. Burgess, Waco.
143 Few Facts Concerning Eye, Worth Knowing By All Physicians. L. H. Lanier, Texarkana.

West Virginia Medical Journal, Huntington

May, X, No. 11, pp. 363-398

144 Tuberculosis of Bladder and Kidneys. T. E. Vass, Bluefield.
145 Local Applications in Treatment of Pulmonary Conditions. J. A. Graham, Fairmont.
146 Treatment of Pulmonary Tuberculosis. E. E. Watson, Salem, Va.
147 Laboratory and Clinical Diagnosis. M. L. Heidingsfeld, Cincinnati.
148 Value of Canadian "606" (Diarsenol). W. S. Robertson, Charleston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

April, XX, No. 11, pp. 357-392

1 New Roentgen Method of Bullet Extraction. A. E. Barclay.
2 Roentgen Ray in Tuberculosis of Bones and Joints. (To be continued). R. W. A. Salmond.
3 Light from Simpson Arc Lamp. Its Nature and Therapeutic Properties. A. MacGregor.

British Medical Journal, London

April 22, I, No. 2886, pp. 577-608

4 *Treatment of Gunshot Wounds of Spine; Report of Case. A. J. Hull.
5 Toxic Effects of Ethylhydrocuprein on Eye. G. H. Oliver.
6 Notes From Battle Front in Northern France. A. L. Smith.
7 *Fecal and Intestinal Vomiting and Jejunostomy. V. Bonney.
8 Case of Marked Temporary Aphasia After Ligature of Common Carotid Artery for Traumatic Aneurysm. F. C. Madden.
9 Fatal Case of Acute Nephritis Occurring in Expeditionary Force. R. C. Clarke.
10 Injury to Internal Ear Presenting Some Unusual Fentures. H. L. Whale.
11 *Treatment of Diabetes. J. Hume.
12 New Forms of Plating Dishes for Cultivation of Bacteria. S. Delépine.

4. **Treatment of Gunshot Wounds of Spine.**—The position taken by Hull is that the majority of cases of gunshot injury to the spine require excision of the wound and exploration at the earliest favorable opportunity. The diagnosis is not so gloomy as past experience teaches. Local anesthesia is practically essential. The administration of hexamethylenamin should be begun as soon after the injury as possible. The presence of a missile together with severe pain are indications for immediate operation. Accurate localization of foreign bodies is of the utmost moment. A lateral as well as an anteroposterior view is desirable.

7. **Fecal and Intestinal Vomiting and Jejunostomy.**—In all cases of paralytic intestinal obstruction (whether primary, or secondary to an organic obstruction or to peritonitis), when advanced to the stage of fecal, or short of fecal, intestinal vomiting, jejunostomy should be done says Bonney. In all cases of obstruction, the stomach and jejunum will eventually be included in the fluid containing segment, and as soon as this occurs the fact is made patent by the change in the character of the vomit, which at first becomes intestinal and finally fecal. This upward extension of the limits of the fluid containing segment is due to a rapid upwardly extending infection of the canal by organisms of the lower intestine. This conversion by bacterial agency of the normal contents of the small intestine into a highly toxic fluid Bonney claims is the essential factor in the production of the symptoms of acute intestinal obstruction. The presence of the toxic substances in the bowel excites the mucosa to exude a copious watery secretion which, mingling with the infected fluid already there, itself undergoes corruption. Thus the upper intestinal tract becomes converted into a great toxic reservoir. The death of the patient is due to the absorption of this toxic material, and the vomiting is Nature's desperate attempt to rid the organism of the poison. It is here that surgery should step in and drain the reservoir and the drainage opening must tap the fluid containing segment.

11. **Treatment of Diabetes.**—For several years Hume has treated his diabetic patients by fasting, and cleansing of the alimentary tract, at the same time allowing a diet from which starch was not entirely excluded. The fast is generally of about fourteen hours' duration. The best time to commence is in the evening by a light meal about 5 p. m. and is followed in two hours by a dose of castor oil. At 9 the next morning a second dose of castor oil is given and then no food for two hours. By 11 a. m. the bowels have, as a rule, acted, and the patient receives breakfast. There is, therefore, a period of absolute fasting between the two medicines. In succeeding fasts salines are used, the object being to secure a thorough evacuation and to reduce the intestinal flora so far as possible. The patient can easily go through the same routine every second night, and after he has become accustomed to the treatment the duration of the fasts should be prolonged

by beginning earlier in the afternoon and extending them next day. At the end of a fortnight a fast of twenty-four hours can easily be done two or three times a week. If a small quantity of sugar persists Hume recommends two fasts each week of about fourteen hours, and finds this quite sufficient to prevent the other symptoms of the disease from manifesting themselves and to allow the patient to attend to his duties.

Journal of Tropical Medicine and Hygiene, London

April 15, XIX, No. 8, pp. 89-100

13 Case of Vaginitis Probably Due to Monilia Pinoyi Cast. 1910. A. Castellani.
14 Prevention of Conception Among Natives of Kasai Basin, Central Africa. W. E. Masters.
15 Madura Foot in Trinidad. R. Scheult.
16 Beriberi Early Diagnosed and Readily Curtailed. A. P. Draper.

Lancet, London

April 22, I, No. 4834, pp. 849-894

17 Infantile Mortality and Relative Practical Value of Measures Directed to Its Prevention. S. G. Moore.
18 Shock and Soldier. G. E. Smith.
19 Preparation and Use of Certain Agglutinating Serums. H. Chick.
20 Intramine (Diorthoaminothiobenzene), New Antisyphilitic Remedy; Report of Cases. H. Spence.
21 *Results of Treatment of Chronic Joint Diseases by Certain Physical Measures. J. J. Grace.
22 Case of Heart Block Showing Large Auricular Waves in Femoral Tracing. A. W. Falconer.
23 Latent Gas Bacillus Infection in Healed Bullet Wound. D. P. Penhallow.
24 Case of Intussusception of Vermiform Appendix. W. A. Curry and E. H. Shaw.
25 Case of Tetanus-Like Spasm Localized to Wounded Limb. G. T. Mullally.
26 Work of Royal Free Hospital Unit in Serbia. J. Berry.

21. **Treatment of Chronic Joint Diseases.**—Grace has treated twenty-four cases of chronic joint disease by radiant heat and static electricity, with in a few cases electrothermic penetration (diathermy) also. Among these were 2 ankle-joints, 11 knees, 7 hips, 1 phalangeal joints of hand, 1 elbow and 2 shoulders. The ankles did fairly well, knees very well, hips uniformly badly, elbow-joints and finger-joints badly, and shoulders fairly well. These results are obtained with a high candle power lamp giving at least 500 candle power from a single filament. Grace uses 3,000 candle power and thinks it is better than the lower candle power lamp. The static machine used should be capable of giving at least an 18 inch spark between prime conductors with one side grounded. With suitable electrodes and a sufficient interval between contraction, very powerful and penetrating currents are tolerated. In treating the knee, for instance, an 18 inch spark gap is borne with ease.

Sei-I-Kwai Medical Journal, Tokyo

April, XXXV, No. 4, pp. 17-22

27 Tubercular Peritonitis and Its Surgical Treatment. Y. Takaki.

Bulletin de l'Académie de Médecine, Paris

April 11, LXXV, No. 15, pp. 397-424

28 Cortical Hemiplegia; Recovery After Bilateral Trephining. (Syndrome de Weber d'origine corticale. Trépanation bilatérale. Guérison.) P. Peugniez.
29 *Test for Functional Capacity of Vestibular Labyrinth. (Nouveau mode d'examen du labyrinthe vestibulaire.) E.-J. Moure.
30 *Carrel's Method for Abortive Treatment of Infection in Wounds. (Résultats obtenus par l'emploi de la méthode Carrel en chirurgie de guerre.) M. Perret.
31 Nervous Affections Consecutive to War Wounds of the Head. (Au sujet des séquelles nerveuses des traumatismes cranio-cérébraux de la guerre d'après une statistique de 256 cas.) M. Villaret.

29. **Test of Functioning of Vestibular Labyrinth.**—Moure relates that, in addition to the usual tests, including induced nystagmus, he has found very useful a test based on a children's game. The individual with eyes shut turns five or six times around a stick or cane which he touches with his head. Then he opens his eyes and tries to walk straight forward. The normal are unable to do this, always being propelled in the direction in which they have just been turning, and sometimes falling in this direction. But when the labyrinth is more or less impaired, there is none of this propulsion, and the individual can walk off straight or nearly straight as soon as he stops turning and opens his eyes.

30. **Carrel's Abortive Treatment of Infection.**—Perret emphasizes that the success of Carrel's method depends on whether the wounded get the proper treatment within six hours. Also that the wounds must be completely cleared out from all foreign matters before beginning the continuous irrigation with Dakin's hypochlorite solution. He has applied the method in 111 cases of very severe wounds, including bones in 33 of the cases. All the men recovered and amputation was not required in any case. In short, he declares, with this method we are masters of infection of wounds. Among the illustrative cases described is that of a man whose patella had been reduced to a pulp (*réduite en bouillie*) by a shell wound, the lateral ligaments alone not being completely severed. The wound was cleared of bone and metal splinters and scraps of clothing, and Dakin irrigation kept up continuously. The temperature did not go above 38 C. except on the day the drain was removed and the day the man got up. There was no reaction in the joint at any time. It was exercised from the twenty-second day on; he was allowed to get up after thirty-one days, and was discharged the fifty-fourth day after the wound, his gait, without support, absolutely normal.

Journal de Médecine de Bordeaux

April, LXXXVII, No. 6, pp. 101-120

32 War Wounds of the Ears. (Les blessures des oreilles en temps de guerre.) G. Canuyt.
33 Severe Poisoning and Asphyxia in Eight Men Traveling in Closed Army Automobile for Over three Hours. (Sur un cas d'asphyxie multiple et compliquée observé sur le front.) A. Teynac.

Lyon Chirurgical, Lyons

January-February, XIII, No. 1, pp. 1-212

34 Advantages of Metal Plates to Aid in Fixation of Fragments After Fractures in War. (De la fixation métallique des fragments osseux dans les fractures compliquées, infectées, consécutives aux blessures de guerre.) E. Villard.
35 *Technic for Access to Urethra at Junction With Bladder. (Désinsertion ischio-pubienne totale de l'aponévrose périnéale moyenne, pour mobiliser l'urètre profond et extérioriser la région prostato-vésicale.) Rochet.
36 *Biologic Study of War Wounds. (Les premiers stades de l'évolution des lésions dans les blessures par éclats d'obus.) A. Policard and A. Phélip; (Recherches sur la suture secondaire des plaies de guerre.) A. Policard and B. Desplas; (De l'asepsie pure et des moyens physiques dans le traitement des plaies de guerre à leurs différents stades. Chimiothérapie ou physiothérapie?) R. Leriche.
37 Wounds of the Knee in War. (Traitement des plaies pénétrantes de l'articulation du genou dans une ambulance chirurgicale de l'avant.) G. Gayet; (Idem.) P. Santy; (Traitement des plaies articulaires du genou dans les formations de l'avant.) G. Cotte; (Comment améliorer le pronostic des lésions articulaires du genou en chirurgie de guerre?) G. Tisserand; (Résultats des interventions précoces dans les plaies articulaires par projectiles de guerre.) B. Desplas and D. Chevalier.
38 The Clearing Ambulance. (Le fonctionnement d'une ambulance de triage du 25 au 30 septembre.) A. Latarjet.
39 The Field Hospital. (15 jours de chirurgie dans un centre hospitalier de l'avant au moment d'une offensive.) G. Cotte.
40 The Base Hospital. (Statistiques opératoires intégrales d'un service de chirurgie de l'arrière au moment d'une offensive.) R. Leriche.

35. **Access to the Prostate Region.**—Rochet discusses the various technics for this purpose, commenting on the narrow space available by way of the perineum, and the disadvantages by other routes. He suggests as an improvement over them all, to mobilize *en masse* the entire perineum by separating from the side the middle fascia from its peripheral attachment to the entire ischio-subpubic triangle. This releases the rigid support of the urogenital diaphragm which shuts off the small pelvis in this ischio-subpubic triangle. He commences with Young's V incision. The various steps of the technic are described in detail, and the advantages of the ample access afforded are extolled. In two cases of cancer of the prostate he was much impressed with the facility of the *extériorisation énorme* permitted by this mobilization of the entire urogenital diaphragm.

36. **Biologic Research on Wounds in War.**—Forty-one articles on various aspects of military surgery were pub-

lished in the *Lyon Chirurgical* during 1915 and this number contains thirteen more. Three are devoted to research on the biologic evolution of shell wounds, the general course, the initial proliferation of microbes, the natural curative processes, and the means to promote them. Policard and Phélip demonstrate anew that the ulterior evolution of the wound is determined by what happens during the first four to six hours. Substances to dissolve rather than to sterilize are needed at first, to clear the wound of mortified and dead tissues. The dissolving action of hypochlorite gives better results later than measures to sterilize or tan the tissues. The toxins absorbed from necrotic masses are responsible for the fever and collapse which develop before the germs have had a chance to proliferate much in the wound.

Policard and Desplas report excellent results when they have ventured to suture extensive wounds without leaving the healing entirely to Nature. There is always an inflammatory reaction, but it is usually insignificant and causes no general symptoms. But it is always present, and always requires close supervision. This is possible by repeated microscope examination of the serous fluid that oozes between the stitches. It can be obtained with a pipet from quite a depth below the surface, and the microscope will show the defense the leukocytes are presenting and the increasing or decreasing numbers of germs. A favorable sign is when the nuclei in the leukocytes take the stain intensely and seem to be more condensed and as if contracted.

Leriche is convinced that mechanical cleansing of wounds and keeping them open to the sun and air are the ideals in military surgery. Physiotherapy should supplant chemotherapy entirely as a rule, he reiterates.

Lyon Médical, Lyons

April, CXXV, No. 4, pp. 105-140

41 *Reaction to Vaccination Against Typhoid and Paratyphoid. (Etude des réactions humorales dans la vaccination antityphoidique et antiparatyphoidique A B — sérum de Vincent.) Tonnel.
42 War Wounds of the Chest. (Les plaies pénétrantes de poitrine par projectile de guerre.) Piéry. To be continued.

41. **Reaction to Antityphoid Vaccination.**—Tonnel has been studying the reaction as 5,000 men were vaccinated against typhoid and paratyphoid, and he here summarizes the detailed findings as recorded with minute care in thirty healthy soldiers and in twenty who were already under hospital care. There was always more or less of a reaction evident in the blood and urine, but in some of the men it was so exaggerated as to be actually pathologic. He noted with surprise that the reaction was least intense in the tuberculous and those with albuminuria, while some of the apparently healthy responded with a pathologic reaction. There is always more or less destruction of red corpuscles; a loss of half a million may be regarded as the average. This suggests the necessity for caution in vaccinating persons known to have unusually fragile corpuscles. Kidney trouble also calls for caution. After the vaccination the urine becomes much less toxic. His test for this was with infusoria placed in the urine. They die in a few seconds in normal urine. The reduction in toxicity may be estimated from the length of the survival of the infusoria. With a pathologic reaction to vaccination, the infusoria persist unharmed in the urine while the uric acid and urobilin content of the urine is much increased, and the red count is much less.

Paris Médical

April 15, VI, No. 16, pp. 377-392

43 Piping Drinking Water in the Trenches. (Une installation urbaine de distribution d'eau dans les tranchées.) G.-H. Lemoine and C. Duplessis.
44 Heart Murmurs as Impairing Fitness for Service. (Souffles cardiaques. Aptitude militaire.) O. Josué.
45 *Acute Nephritis in Troops on Active Service. (Les néphrites aigues des troupes en campagne.) M. Gaud and P. Mauriac.
46 Rat-Bite Fever. (Cas de sokodu — septicémie éruptive par morsure de rat — observé dans la zone des armées.) J. Fiévez.

45. **Acute Nephritis in Troops on Active Service.**—Gaud and Mauriac state that of the 2,000 sick and wounded who passed through their hands in the course of three months last fall, 6.5 per cent. had acute nephritis and the proportion has grown larger since. Acute nephritis was a rarity during the early part of the war. After from three to six days of lassitude, headache and pains in the lumbar region, the edema develops in the course of a few hours, the face generally puffing up first. This nephritis runs its course like an infectious disease, with a rapid and cyclic course. The fever at first, the extensive edema, high blood pressure, high albuminuria and traces of blood in the urine are its main features.

Under the influence of repose and milk diet, recovery was the rule in two weeks in an average; no case lasted longer than four weeks. No complications were noted except in two cases; these men were in coma when brought in and had had several uremic convulsions and the urine contained up to 8 gm. of albumin to the liter. Venesection twice repeated brought rapid improvement and recovery in one case but the other patient succumbed. This has been the only death from nephritis in the service. No drugs were used except a little theobromin. The hardships of the campaign reduce the resisting power of the kidneys so that albuminuria is frequent among the apparently well soldiers. When some infection happens along the kidneys bear the brunt of its attack. In five of these nephritis cases bacilli resembling those of typhoid and paratyphoid were isolated from the blood or urine.

Presse Médicale, Paris

April 13, XXIV, No. 21, pp. 161-168

47 Facial Paralysis From War Wounds. (Paralysies faciales de la guerre.) E.-J. Moure.
48 Operative Treatment of War Wounds of the Chest. (Du traitement chirurgical des plaies pénétrantes de poitrine.) Gasquet.

April 17, No. 22, pp. 169-176

49 *Amebic Dysentery. (Pourquoi avons-nous failli méconnaitre la dysenterie amibienne?) P. Ravaut and G. Krolunitsky.
50 Evils of Abuse of the Sling. (Les écharpés.) Rochard and Stern.

49. **Amebic Dysentery in France.**—Ravaut remarks that the war has signally modified many old medical as well as military conceptions. As a typical instance he mentions a small epidemic of amebic dysentery in northern France, in persons who had never been in the tropics. The stools contained the dysentery bacillus, and at first this was regarded as the agent of the dysentery, when in fact it had nothing to do with it. The benefit from emetin helped to differentiate the amebiasis. Even this fails at times or loses its efficacy; too long kept up it may act injuriously on the heart and impair the appetite. Ravaut found it of great advantage in ensuring a permanent cure to combine salvarsan with the emetin.

Progrès Médical, Paris

March 5, XXXII, No. 5, pp. 33-40

51 Colloidal Sulphur Intravenously in Ophthalmology. (Traitement des sclérites, kératites et iritis dites rhumatismales, par le soufre colloidal.) Carlotti.
52 *Silver Nitrate in Treatment of Vincent's Angina. F. Ramond.
53 Training Mind and Muscles to Overcome Radial Paralysis. (Traitement des impotences consécutives aux blessures de guerre par la rééducation psycho-motrice.) H. Gosset.

52. **Vincent's Angina.**—Ramond has usually found the lesions of Vincent's angina unilateral or much more pronounced on one side. The gland below the jaw is involved constantly and early. The ulceration soon burrows deep while the exudation covering it grows thinner. The ulceration takes two or three weeks or a month or two to heal, and leaves a deep cavity; sometimes the tonsil is almost totally destroyed. In a third of his cases there were other lesions in the throat of another nature; in one case a syphilitic chancre on the tonsil. In a recent small epidemic of diphtheria, there were five cases of associated diphtheric and Vincent's angina. Of all the methods of treatment proposed, methylene blue, salvarsan and silver nitrate have given the best results, and Ramond is loyal to the last mentioned. He paints the ulceration with a 2 per cent. solution of silver nitrate. The part is first wiped dry with cotton and then the ulceration is dabbed with a pad of cotton moistened with the silver solution. The application is repeated twice a day for two days, then once a day till the fifth day. By that time healing is well inaugurated.

Archiv für Gynaekologie, Berlin

CV, No. 2, pp. 151-315. Last indexed April 15, p. 1277

54 *Human Ovum Only Two or Three Weeks Old. (Ein junges menschliches Ei.) S. Schlagenhaufer and J. Verocay.
55 *Treatment of Genital Tuberculosis. M. Kröner.
56 Factors Influencing Presentation of Fetus. (Die Ursachen der Kindeslagen. II. Physikalisch-experimentell Untersuchungen.) F. Schatz. Conclusion of Part II.
57 Early Stages of Corpus Luteum Production. (Frühstadien der Corpus luteum-Bildung beim Menschen.) W. Reusch.
58 *Ossification Process in Fallopian Tube. (Zur Kenntnis der Knochenbildung in den Tubae uterinae.) H. Lehmacher.
59 Fetal Ascites as Obstacle to Delivery. (Geburtshindernis infolge von fötalem Aszites.) J. R. E. Meumann.

54. **Young Human Ovum.**—An otherwise healthy woman died three hours after drinking lysol with suicidal intent and sections of the uterus revealed an embedded ovum of perhaps two to three weeks, one of the youngest that have been studied. Colored plates show the details of its structure. Most of the other specimens of the kind on record were from pathologic cases.

55. **Treatment of Genital Tuberculosis.**—Kröner reports the present status of 25 women with genital tuberculosis for which he operated from fifteen months to over four years ago. Two have died since and the objective findings are not good in 5 others, although they feel well, 18 are practically cured and have gained materially in weight, with earning capacity restored. In his total 32 cases of genital tuberculosis in women in the last three years, the lungs were only slightly if at all affected in 3. The cases in which there had been perforation of the intestines, or tuberculous material had been left behind, gave naturally a less favorable outlook, and the course of the cases confirmed the gravity of such conditions. The clinical picture of genital tuberculosis is often that of inflammatory processes in ovaries or tubes with extensive destruction of tissue and large collections of pus in ovaries or tubes or both. The danger is great unless the whole can be resected. But when both ovaries and tubes and the uterus down to the cervix are removed at a laparotomy this guarantees in most cases—when the genital affection dominates the clinical picture—a prompt and complete subjective cure with restoration of earning capacity and freedom from subjective disturbances. The 32 cases described formed 14 per cent. of his operative cases of diseased ovaries or tubes during this period. Five of the women were between 15 and 20, and fifteen were between 20 and 30. One was over 50. Menstruation had been normal in 66 per cent.; in 4 cases there had been amenorrhea for a few months, and in 2 there had been excessive bleeding. In some cases there was no pain; in others much sacral pain and more or less abdominal pains. All the women were ailing and weak, some actually confined to bed. There was fever in 4 of the 21 cases of pure genital tuberculosis, and in 5 of the 11 with complicating tuberculous peritonitis. Both tubes were always seriously involved. Differential diagnosis is immaterial as the clinical picture of chronic disease in the uterine adnexa calls for a laparotomy regardless of its etiology. If adhesions contraindicate excision of the focus, intervention must be limited to local medication of the abdominal cavity. Kröner makes a point in all operations on the adnexa to wait until the temperature is brought down to normal before attempting to operate.

58. **Ossification in Fallopian Tube.**—Lehmacher has found five cases on record and adds two more to the list. In his cases, the tubes had been removed from a married woman of 47 who had never borne children, and from the cadaver of a woman of 56 who had succumbed to heart disease. Both tubes in each case were found obstructed with lime detritus around which bone had developed, with marrow.

Berliner klinische Wochenschrift

April 17, LIII, No. 16, pp. 413-440

60 Sclerous Eczema. (Das schwielige — callöse — Ekzem.) P. G. Unna. To be continued.
61 *Prophylaxis of Tetanus. (Die Erfolge der Schutzimpfung gegen Wundstarrkrampf.) Kümmell.
62 *Improved Technic for Roentgenography of Fistulas. (Die radiologische Darstellung der Ursprunge von Fistelgängen mittels einer vereinfachten und verbesserten Füllungstechnik.) G. Holzknecht, L. Lilienfeld and F. Pordes.
63 *Connection Between Tonsillitis and Articular Rheumatism, and Danger for Military Efficiency. (Zur Kenntnis des kausalen Zusammenhanges zwischen Angina und Gelenkrheumatismus und deren mögliche Folgen auf die Wehrfähigkeit.) Brodzki.

61. **Prophylaxis of Tetanus.**—Kümmell has been making special inquiry in various German hospitals as to the occurrence of tetanus during the ten or eleven months since the wounded have been given a prophylactic intramuscular injection of 20 units of tetanus antitoxin as a routine measure. In one hospital that had previously had numerous cases of tetanus, the only case since among 700 severely wounded was in the one man who by some blunder failed to get his intended injection. Among 1,555 severely wounded men, only one case of tetanus developed, but this proved fatal. He has found that during the period in question, only 42 cases have been known in army circles, although the soil, the weather conditions, etc., are practically the same as the year before when the disease was so prevalent. Of this 42, only 7 of the men had received a prophylactic injection. The incubation period ranged from five to twelve days. Aschoff and Robertson last year reported a compilation of 66 cases of tetanus which had developed notwithstanding a previous prophylactic injection; 36 terminated fatally, but the injection was made very late in all but 18, and 9 recovered in this group of 18. Kümmell emphasizes further that according to all reports, the protection conferred by the antitoxin lasts for only fifteen days, and, if the wound is very much soiled, only a week's protection can be counted on. Hence it is necessary to repeat the injection a week later if any operative measure, even the slightest, is contemplated. It is better, also, to repeat the injection before any operation for a person who has had tetanus, even though a long interval may have elapsed. Kümmell concludes by warning that a few persons seem to be especially susceptible to tetanus infection, and that it is impossible to count on effectual prophylaxis for them. It is also difficult to realize when tetanus germs are harbored in overwhelming numbers. He cites the statistics in this country of Fourth-of-July tetanus as further testimony to the value of antitetanus serum prophylaxis. As to treatment, he says that no dependably favorable results have been realized to date with any method of treatment for tetanus when it is once under way. (See abstract 5 in American Current Literature Department, this issue.)

62. **Roentgenoscopy of Fistulas.**—Instead of bismuth paste, Holzknecht and his co-workers use cocoa butter bougies containing bismuth or other opaque substance, with a little antiseptic. The bougies are made 8 mm. long and 2 mm. in diameter, and they are easily pushed up into the fistula, one after the other, until the fistula is filled up. The bougie melts from the warmth of the body and flows into the recesses of the fistula, while the outer end of the last one, in contact with the air, does not melt and thus it plugs the orifice. A wash button is fastened over it, with plaster strips, to hold it in place. A number of roentgenograms are reproduced with the bougie filling and with the ordinary bismuth paste filling, clearly showing, they say, the advantages of the former. Bismuth paste is liable to run out and give misleading shadows.

63. **Tonsillitis and Articular Rheumatism.**—Brodzki relates that among the 1,200 sick marines in the navy hospital in his charge in the seventeen months of the war, no less than 610 were cases of tonsillitis, and in 10 per cent. of these articular rheumatism followed. He expatiates on the importance of rendering the tonsils less permeable to microbes, and insists that every recruit with enlarged tonsils or history of tonsillitis should have the tonsils removed as a prophylactic measure, or at least they should be thoroughly scared to provide a cicatricial barrier against infection from all sides.

Deutsche medizinische Wochenschrift, Berlin

April 13, XLII, No. 15, pp. 437-468

64 *Treatment of Puerperal Infection. P. Jung. Concluded.
65 Parasite Found in the Louse as Possible Typhus Germ. (Ueber einen als Erreger des Fleckfiebers verdächtigen Parasiten der Kleiderlaus.) W. Stempell.
66 Diagnosis and Epidemiology of Dysentery. (Ruhr.) F. Schutz.

67 Products of Disintegration of Blood Corpuscles in the Ultramicroscope. ("Ueber eine neue, dem Rückfallfieber ähnliche Kriegskrankheit.") A. V. Knack.
68 Amputations and After-Treatment. (Grundsätzliches zur Frage der Amputationen im Felde und der Nachbehandlung Amputierter.) G. Seefisch.
69 Present Status of Military Surgery. (Ergebnisse der bisherigen kriegschirurgischen Erfahrungen.) H. Matti. Concluded.
70 Portable Extension Appliance for Fractured Arm. (Behandlung der Schussfrakturen der Oberextremität mit Extensions-Brückenschiene.) G. Frank.
71 *Tuberculin Does Not Mobilize the Tubercle Bacilli. (Zur Frage der Mobilisierung der Tuberkelbazillen durch Tuberkulin.) B. Möllers and A. Oehler.
72 Improved Counting Chamber. (Eine Zählkammer für zytologische und bakteriologische Zwecke.) E. Liebreich.

64. **Puerperal Fever.**—Jung concludes his long study of puerperal infection by emphasizing the paramount importance of the nursing of patients, care to ward off bed-sores, and nourishment at frequent intervals, possibly every hour, giving some nourishment even through the night. The heart must be constantly supervised. The puerperal fever may run a rapidly fatal course, but sometimes it drags along for weeks and months, the family alternately in hope and despair, and constantly urging the physician to "do something more," give intra-uterine douches, collargol intravenously, etc. In yielding to these lay demands we must guard against doing harm. By giving the intra-uterine douches ourselves, we can restrict them to the vagina and leave the uterus to its indispensable repose. If the patient happens to improve after any remedial measures, Jung begs us to be critical enough to distinguish between *post hoc* and *propter hoc* and not to rush into print with the case.

The tendency to remove the uterus in every severe case is less evident now than some years ago as we have no means for determining which are the really desperate cases until too late for hysterectomy to do any good. The same objection applies to ligation of the pelvic veins. Any chill may be the last one and recovery ensue, with or without the ligation. The operation in itself has a high mortality, but it might be ventured in chronic cases with many chills but comparatively good resisting powers. He adds that gonorrhea may induce a syndrome resembling the classic puerperal fever. When preexisting gonorrhea is known the diagnosis is easy, but otherwise it is seldom thought of. Women known to have gonorrhea should be kept in bed longer and special care be taken to avoid stagnation of lochia. Ergot and the ice bag are especially useful here. Bacteriologic examination of the secretions is the only means to positively differentiate gonorrhea. This is important for various reasons, not the least of which is the exoneration of the physician or midwife for responsibility for the puerperal fever. Gonorrheal puerperal fever almost invariably terminates in recovery, although it usually entails local changes. The local gonorrheal affections require only conservative measures during their acute phase. The woman is generally left incapable of further childbearing. He warns further that the virus of tetanus is extremely hard to get out of a room that has once been infested with it. Puerperal tetanus is almost inevitably fatal. When typhoid is epidemic, it might be advisable to vaccinate the parturient against it.

71. **The Tubercle Bacilli Not Mobilized by Tuberculin.**—Möllers and Oehler report that examination of the blood of fifty-four tuberculous patients before and after injection of tuberculin failed to show any evidence that the tubercle bacilli are mobilized and driven into the blood by the injected tuberculin.

Medizinische Klinik, Berlin

April 16, XII, No. 16, pp. 407-432

73 Traumatic Fistulas and Their Treatment. A. Hoffmann.
74 Organization of the Vienna Orthopedic Hospital and Training Schools for the Maimed. (Organisation und Aufbau des Orthopädischen Spitales und der Invalidenschulen.) H. Spitzy.
75 *Febrile Infectious Jaundice; Thirteen Cases. (Zur Klinik der Weilschen Krankheit.) F. Trembur and R. Schallert.
76 Narrow Aorta and Fitness for Military Service. (Aorta angusta und Kriegsdienst.) H. Strauss.
77 Unrecognized Perforation of Small Intestine in Ambulant Typhoid; Four Cases. (Nicht erkannte Dünndarmperforation nach Typhus ambulatorius.) Fuhrmann.

75. **Acute Infectious Jaundice.**—Trembur and Schallert remark that the recent discovery of the spirochete causing Weil's disease was made on the group of cases they here report in detail, eleven in all, scattered through five months. The illness came on suddenly, with headache, sacral pains and leaden fatigue in the limbs, soon changing to pains, especially in the calf muscles and thighs. The pains were sometimes so severe that the men cried out, and the muscles were unbearably tender to the lightest touch. The jaundice did not develop until from three to seven days after the onset of symptoms. Vomiting, nose-bleed, mucous diarrhea followed by constipation, swelling and redness of the conjunctiva and throat, vertigo and pains in swallowing were other features of some of the cases. An initial chill was noted in three cases; in the others there was merely a sensation of chilliness before the fever came on. The fever charts show one or more relapses of the fever in some cases; bronchitis was evident in all. Necropsy revealed pneumonia in the one fatal case, and hemorrhagic erosions and follicular ulceration in the mucosa of the large intestine from the rectum to the ileocecal valve. The liver was enlarged in all but three and the area of heart dulness was enlarged, the pulse small, rapid and irregular. An operation for gallstones was done in one of the earlier cases, but none were found and the diagnosis was then corrected to Weil's disease. In treatment, stress was laid on food that promoted coagulation of the blood, red wine gelatin and meat juice jelly. Convalescence was slow. Air cushions were used to prevent bed-sores, the position was frequently changed and the men were urged to "breathe deep." Diuresis was promoted by subcutaneous injection of 0.85 per cent. salt solution.

Münchener medizinische Wochenschrift, Munich

April 18, LXIII, No. 16, pp. 557-592

78 *Edema of the Kidney. (Ueber Nierenödem.) E. Meyer.
79 *The Eosinophils as Guide in Tuberculin Treatment. (Ueber die Bedeutung der eosinophilen Leukozyten bei der Durchführung einer Tuberkulinkur.) O. Brösamlen.
80 Photo-Activity of Body After Exposure to Mesothorium. (Verbreitung von Mesothoriumenergie im Körper der therapeutische Bestrahlten nachgewiesen durch Photoaktivität.) B. Schweitzer.
81 Streptococcus plus Diphtheria Bacillus Meningitis. F. Reiche.
82 *Treatment of Vulvar Pruritus. (Zur Aetiologie und Therapie des Pruritus vulvae.) H. H. Edenhuizen.
83 Psychologic Considerations on the War. (Kriegspsychologisches.) W. Fuchs.
84 Official Prophylaxis of Typhoid. (Die amtsärztliche Bekämpfung übertragbarer Krankheiten. VII.) M. Henkel. Concluded.
85 Means to Determine Presence of Metallic Iron in the Eye: Portable Sideroscope. (Ueber Sideroskopie.) E. Hertel.
86 Bullets Lodged in the Tissues. (Das Steckgeschoss.) O. Witzel.
87 Traumatic Shock and Collapse. (Traumatische Gefässkrisen.) S. J. Thannhauser.
88 Appliances to Correct Brachial Paralysis. (2 Apparate bei Verletzungen des Plexus brachialis — C_5, C_6.) O. Stracker.
89 Operating Under First Whiffs of Ethyl Chlorid. (Der Chloräthylrausch in der Kriegschirurgie.) G. Hosemann.
90 Bone Flap From Skull Near by to Close Gap in Skull. (Zur Deckung von Schädeldefekten.) H. Rühl.
91 Management of Fracture of the Femur in War. (Ueber die Versorgung der Oberschenkelschussfrakturen im Kriege.) L. v. Stubenrauch.
92 Bile Agar for Cultivation of Typhoid Baeilli. (Ueber die Koenigsfeldschen Galleschrägagarröhrchen zur Typhusbazillenzüchtung.) L. Löhner.

78. **Edema of the Kidney.**—Meyer applies this term to serous infiltration of the kidneys themselves. The kidneys of persons who have died from chronic parenchymatous nephritis are often enlarged and abnormally heavy from this serous infiltration, and he thinks that this is responsible for more of the various symptoms than is generally recognized. In a typical case of renal dropsy in a young woman who had long refrained from salt in her food, he scarified the legs and in forty-eight hours 11,700 c.c. of edema fluid thus drained away and by the fourth day she had lost in this way 14 liters of fluid. Diuresis improved at once and the general condition. After five days of improvement the condition grew worse again, the urine output declined to 500 c.c. and the anasarca increased again. On repeating the scarifications, the condition improved remarkably anew and has persisted good during the year since. Except for occasional slight swelling of the ankles and legs the aspect is normal, the urine output keeps between 1,600 and 1,800 c.c., the specific

gravity about 1.010, the albumin content between 5 and 8: 1,000. The blood pressure and fundus of the eyes have shown no pathologic changes. The case is cited as confirming the assumption that the kidneys were suffering from serous infiltration, as well as the other tissues and organs. The edema included the kidneys, and the functioning of the kidneys had suffered in consequence. The condition was similar to that with stasis in the kidneys which can be relieved by venesection or decapsulation. The benefit from the latter is probably due to the same mechanism, relieving the tension from the edema of the organ. When diuresis sets in after decapsulation and the kidney functioning improves miraculously, as many have reported, Meyer thinks that the same result might probably have been attained by breaking up the vicious circle at some other point. Scarification seems to be the simplest and most harmless of all means for this purpose. At least, he insists, it should be given a trial before resorting to an operation.

79. **Behavior of the Leukocytes as Guide in Tuberculin Treatment.**—Brösamlen has found the changes in the morphologic blood picture useful as biologic criteria for the effects of tuberculin treatment. He examined the blood three times a day after the daily injection of tuberculin. There was always more or less leukocytosis, most marked and most durable when the temperature reaction was most pronounced. The neutrophils and the eosinophils showed the greatest proportional increase. Those patients who bore the tuberculin well and showed improvement under it, both subjective and objective, always reacted to the injection with an increase in the eosinophils. There was no increase when the therapeutic effect of the injection was interfered with by an intercurrent affection or other cause. It proved possible by this regular examination of the blood to foretell—from the absence of any increase in the eosinophils—when an intercurrent affection or the like was impending, and, by reducing the dosage or lengthening the intervals, be prepared to meet it. Those patients who showed no increase of eosinophils or a decline did not thrive under the tuberculin treatment. It seems probable that the eosinophilia may be regarded as an index of the development of certain protective forces. Cases in which these do not develop—as indicated by the absence of an increase in the numbers of eosinophils—he regards as unsuited for tuberculin treatment, other things being equal.

82. **Treatment of Vulvar Pruritus.**—Edenhuizen is convinced that most cases of vulvar pruritus are due to irritation from the secretions. Hence she combats it by careful cleansing, painting with tincture of iodin, and keeping all moisture away from the region. All cleansing of the anus and vulva is done with cotton wads dipped in oil. Exercise is restricted to avoid perspiration, and the vagina and entire genital region are kept powdered dry, three times a day. Tampons in the vagina collect the discharge during menstruation. With this combined treatment kept up for six or eight weeks, the irritation subsides completely and the pruritus is permanently cured after possibly years of torment. The details of six typical cases are given. She warns that the iodin may smart for an hour or so; in two cases she had to inject a sedative on this account. In these cases there was eczema in the vulvar region. The iodin and powder applications were repeated every third and later every fifth day when there was eczema. Zinc oxid was the powder used mostly. The cure, she reiterates, depends on keeping all moisture away from the region. After urination and defecation the meatus and anus are wiped with oiled cotton, then with dry cotton and then powdered.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 8, XXXVII, No. 28, pp. 433-448

93 *Tuberculosis in War. (Tubercolosi in guerra.) A. Fagiuoli.

April 9, No. 29, pp. 449-464

94 Examination of Infants' Stools as Aid in Diagnosis. (L'esame delle feci nelle malattie gastrointestinali del lattante.) G. Funaioli.

93. **Tuberculosis and War.**—Fagiuoli in commenting on the numbers of soldiers found to be tuberculous, says that the hardships and vicissitudes of the campaign are ample to explain the rousing of latent tuberculous processes to an active destructive course, but that probably direct recent contagion is responsible for a certain proportion of the morbidity. On the other hand, he knows of instances where the camp life seems to have given the finishing touch to the cure started under sanatorium or dispensary treatment, and the men are now found rugged and free from any signs of tuberculosis. He urges that every province should make arrangement for one or more sanatoriums for tuberculous soldiers, and that measures should be taken to make the soldiers take the needed courses of sanatorium treatment. The soldier has but one wish, he says, and that is to return to his family, and the sick long for this even more than others. So it will be a difficult matter to get them to take proper sanatorium treatment. The military authorities may have to refuse to discharge the man from the army after the war until he has taken the required course of treatment. The sanatorium physician should be empowered to keep the man three or six months as his condition requires.

Policlinico, Rome

April 9, XXIII, No. 15, pp. 453-484

95 Aphasia in Typhoid in Children. (Contributo clinico allo studio dell' afasia nella febbre tifoide dell'infanzia.) F. Laureati.

April, Medical Section, No. 4, pp. 97-128

96 *Tuberculous Meningitis Simulating Incipient Tabes. (Meningite tubercolare emorragica a lungo decorso, con sindrome e lesioni istologiche di tabe iniziale.) F. Alzona.

97 Endoscopy in Diagnosis and Treatment of Bacillary Dysentery. G. Izar.

96. **Tuberculous Meningitis Simulating Tabes.**—Alzona describes the case of a girl of 15 who developed pains in the spine and legs, headache and vomiting after meals, with delirium. These occasional symptoms kept up for six months. The Romberg and Westphal signs were positive and there were also pronounced ataxia, gastric crises and girdle pains. The cerebrospinal fluid was hemorrhagic but inoculation of animals was always negative. Necropsy revealed tuberculous foci in the lungs and meninges but other lesions suggested those of tabes. The case confirms the assumption that the hemorrhagic type of tuberculous meningitis is liable to induce lesions in the nerve roots like those of tabes.

Brazil-Medico, Rio de Janeiro

April 1, XXX, No. 14, pp. 105-112

98 *Ileosigmoidostomy for Extreme Ptosis of Transverse Colon. (Um caso de constipação rebelde pela ileosygmoidostomia.) C. Werneck and C. Bicalho.

98. **Ileosigmoidostomy for Intractable Constipation.**—The man of 41 for ten years had sometimes had intervals of thirty or more days between stools, up to forty-five days. The trouble was extreme ptosis of the transverse colon; as the simplest means to remedy it, the ileum was divided and both stumps were implanted in the sigmoid flexure. This ensured the drainage of the excluded portion, and the man was restored to clinical health at one stroke.

Semana Medica, Buenos Aires

XXIII, No. 1, pp. 1-50

99 Treatment of Diffuse Aneurysms. (Tratamiento del hematoma arterial o arteriovenoso.) R. A. Marotta.

100 Reforms in Midwife System. (Nuestro gremio de parteras. Reformas necesarias para su mejoramiento y dignificacion.) J. A. Beruti.

101 Antipertussis Vaccine. (A proposito del suero contra la coqueluche.) P. Ivanissevich.

102 The Defensive Rôle of the Anterior Epithelium of the Crystalline Lens. F. M. Urra.

No. 2, pp. 51-58

103 Operative Treatment of Hemorrhoids. (Tecnica facil para operar hemorrhoides.) B. Vassallo and S. P. Lavalleu.

104 Intravenous Iodin Treatment of Tropical Sore. A. A. da Matta.

105 Abortionist Midwives. (La obstetricia ilegal. Observaciones del medio rural.) B. Bosio.

106 Amebic Dysentery in Spain. F. F. Martinez.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

XV, No. 2, pp. 243-395. German Ed. Last indexed May 20, p. 1065

107 Racial and Sex Variations in the Bone Framework of the Legs. (Ueber das Unterextremitätenskelett.) K. Shiino.

108 *Pathogenesis of Epithelioma. (Experimentelle Studie über die Pathogenese der Epithelialgeschwülste.) K. Yamagiwa and K. Ichikawa.

109 On the Fifth Lumbar Vertebra of Adult in Radiography. S. Jinnaka. (In English.)
110 *Action of Epinephrin on Secretion of Sweat. (Ueber die Wirkung des Adrenalins auf die Schweisssekretion; zugleich ein Beitrag zur Kenntnis der doppelsinnigen Innervation der Schweissdrüse.) K. Muto.
111 Phenolsulphonphthalein Tests of Kidney Efficiency, Especially in Beriberi. (Phenolsulfonphtalein als funktionelles Nierendiagnosticum. Klinische Untersuchungen über die Funktion der Nieren bei Kakke mit seiner Hilfe.) K. Goto.

108. **Pathogenesis of Epitheliomas.**—This communication reports the results of research financed by the Japanese Cancer Research Society. It is profusely illustrated with twenty plates which show the successful outcome in 61.5 per cent. of the experiments. It was found possible to induce the production of an epithelioma at will on the ears of rabbits painted systematically with tar. This occurred on thirty-two of the fifty-two ears thus treated for several months. In three cases the epithelioma showed the typical infiltrating growth of carcinoma, but there was no tendency to metastasis apparent in any case, and attempts at transplantation never gave positive results. The experiments related are said to confirm Yamagiwa's statement that no superposed specific irritation is necessary for carcinoma to develop; all that is necessary is to continue the irritation that has brought the soil into the precancer stage. The experiments further confirmed the importance of age in development of cancer. The increased keratosis under the influence of the tar applications may be regarded as an artificial senility of the skin in the region painted.

110. **Action of Epinephrin on Secretion of Sweat.**—Muto's sixteen mostly two-page charts show the increase in sweat production when epinephrin, atropin, chloral or pilocarpin was injected intravenously or subcutaneously into twenty horses, four sheep, three calves and two cats. Photographs are also given showing the pools of sweat under one of the horses under the influence of epinephrin, and the pool of saliva under pilocarpin. He collected the sweat with a large funnel-shaped leather bag extending under the entire body and neck of the horse. The total amount of sweat from one horse under the epinephrin was 1,230 c.c. The research was undertaken to ascertain whether or not the sweat glands are innervated by the sympathetic system exclusively. The findings indicate that both the sympathetic and the parasympathetic systems are involved. The latter predominates in man, cats and cattle, while the former is chiefly involved in the horse and sheep.

Russkiy Vrach, Petrograd

XV, No. 9, pp. 193-216

112 Iron Atoms in the Blood. (O sostoyanii atoma zhelieza v krovi.) A. I. Danilevsky.
113 The Therapeutic Value of the Sand Baths of Enotaievsk, Astrakhan. (Estestvennia pesochnia vanni.) V. A. Skvorzoff.
114 *Suture of Vessels. (O sosudistom shvie.) V. N. Novikoff.
115 The Mode of Action of Vasoconstrictors and Vasodilators With Internal Hemorrhage. G. A. Lubenetzky.

114. **Suture of Vessels.**—Novikoff found in Carrel's method of suturing injured vessels an ideal physiologic procedure which deserves widespread use, even in the absence of suitable instruments and silk. Suturing of even small vessels gives excellent results if the edges of the torn vessels are freshened and cut obliquely, or in any other way to prevent narrowing of the lumen. Traction on the ends of the vessel must be avoided. Suppuration does not prevent vessel suturing, but Esmarch's band must be ready for use in order to prevent a possible secondary hemorrhage. He gives histories of 8 cases with complete success in 5. In 2 the suture yielded, and secondary hemorrhage occurred on the seventh day in one case after the operation, which necessitated ligation of the vessel. One patient died the day following the operation because of severe loss of blood before and during the operation. In the other 5 cases smooth recovery followed.

Hospitalstidende, Copenhagen

March 29, LIX, No. 13, pp. 273-303

116 *Low Gravity Abscess From Tuberculous Process in Sacrum. (Pyriformis-Abscessen.) T. Rovsing.
117 *Dyspepsia With Chronic Alcoholism. F. Vogelius and G. Wiltrup. Commenced in No. 11.

116. **Pyriform Abscesses.**—Rovsing applies this term to the puzzling abscesses and fistulas above and near the hip joint which return with exasperating persistence again and again after being curetted and apparently healed. He had about given up the hope of ever curing cases of this kind, when the introduction of bismuth paste as a diagnostic measure cleared up the puzzling syndrome at once. It showed that the low abscess was merely the lower part of an hour-glass abscess, the upper and primary process being in the inner surface of the sacrum. The pus sinks down along the pyriformis muscle and emerges with this muscle through the greater foramen. It collects below where it is usually mistaken for a primary process in the trochanter or hip joint or for bursitis. He reports four cases with a typical recurring course for eleven, eighteen and twenty years before the bismuth paste revealed the true nature of the trouble. It was an easy matter then to cure it permanently by curetting and providing ample drainage. This cannot be realized with a parasacral incision, so he incised on the median line and resected the coccyx. The focus was then reached by working subperiosteally from the lower margin of the sacrum. The focus was thoroughly scraped out and the fistula below flushed with 6 per cent. aqueous solution of phenol. The pelvic fascia were left undisturbed and a stout-walled drain was introduced into the focus, the lower end brought out through the incision below. The skin was sutured around it with aluminum-bronze wire. He says that Beck's book on the use of bismuth paste gives illustrations of two typical cases of this pyriformis abscess. Rovsing does not agree with Beck, however, that bismuth paste is an effectual therapeutic measure; on the contrary, as it plugs the fistula, the secretions accumulate above and dire damage may result. With the above described operative measures his four patients were entirely cured in about seven weeks.

117. See abstract 61, page 1498.

Svenska Läkaresällskapets Handlingar, Stockholm

1915, XLI, No. 3, pp. 411-550. Last indexed Sept. 4, 1915, p. 914

118 Report of Medical Committee on Measures to Check the Spread of Venereal Diseases. (Medicinalstyrelsens utlåtande angående reglementeringskommittens underdåniga betänkande. Till Konungen.)
119 Research on Immunity to Pneumococcus Infection. (Studier över pneumococc-immuniteten.) J. Tillgren.

No. 4, pp. 551-652

120 Ligation of Splenic Vessels as Effectual and Harmless Substitute for Splenectomy in Blood Diseases. (Om underbindning av mjältkärl såsom ersattningsoperation for splenektomi vid blodsjukdomar.) A. Troell.
121 Inflammation of Tendon and Sheath With Crackling Sounds. (Om den s. k. tendovaginitis crepitans.) A. Troell.
122 Gage for Angles of Joints. (En ny goniometer för mätning av de långa skelettbenens vinklar.) G. Backman.
123 Gage for Angle of Torsion. (En ny tropometer.) G. Backman.

XLII, No. 1, pp. 1-308

124 *Operative Treatment of Glaucoma. (Om sklerektomi vid glaukom.) K. G. Ploman.

124. **Sclerectomy for Glaucoma.**—The 308 pages of this number of the *Handlingar* are all devoted to the experiences of K. G. Ploman with operative treatment for glaucoma. He reviews the history and the literature, and compares the results of Holth's sclerectomy and Elliott's trephining operation and other measures. He also reports considerable experimental research. Over forty pages are given to the tabulated details of his 151 cases, and a six-page summary in German is appended. His conclusions from this material are that the danger of tardy infection renders it necessary to be extremely chary with sclerectomy. It should never be done in prophylaxis. With acute glaucoma, only when other measures have proved ineffectual should sclerectomy be considered. With chronic glaucoma, however, Holth's sclerectomy is followed by permanent reduction of tension in a large proportion of cases. In chronic cases rebellious to other methods, sclerectomy must be undertaken regardless of risk of tardy infection. The younger the patient, the greater the reserve necessary on account of the dangers from infection later. With chronic glaucoma and contraction of the field of vision to near the point of fixation, sclerectomy with peripheral iridectomy may be preferable to simple iridectomy.